THE

SOUTHERN AGRICULTURIST.

MARCH, 1831.

PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—*Observations on the Culture of Silk; by* Dr. JAMES DAVIS.

"Columbia, Jan. 8th, 1831.

Mr. Editor,—In this day of general depression of our staples; and when all are actively inquiring after some substitute for the declining article of cotton, I will take the liberty of offering you some observations on a small experiment of the cultivation of silk. As I was *personally* attentive to the whole process from day to day, assisted by Mrs. D. who, I beg leave to say, took a very lively interest in the experiment, and, as I kept notes of every thing that seemed worth it, perhaps, some of my observations may prove acceptable to such of your readers as may be disposed to engage in the business, and have had no previous experience. My object, however, will be to give general results and conclusions rather than the particular details of the management of the worms. These may be had from sundry treatises, written by practical men, for the express purpose.

My crop consisted of about 6000 eggs, obtained by mail, from Dr. Alexander, of North-Carolina, on the 29th of March, 1829. A portion of the eggs were adhering on white paper, and another portion on old white flaxen linen. I am thus particular for a reason which you will presently perceive. On the 9th of April, the thermometer rose to

70°, and the eggs on the paper began to hatch—those on the linen did not. As the spring was late, and the foreign white, and black mulberry leaves were not larger than a ten cent piece, and the native mulberry leaves only just bursting the buds, it was important to hinder the hatching until the food of the worms should become sufficiently plenty. In this, however, I found considerable difficulty. The temperature of the weather continued extremely variable, one day quite warm, and another cold until the 18th April. During this time I placed the eggs in the coolest cellars I could find in town, but whenever the thermometer rose to 58° in the cellar, especially if the air was moist, some of the eggs on the paper would hatch, in small numbers it is true; but they were for the most part lost, or if not, the rearing of them was rendered troublesome, on account of their different ages, growth, and ultimate operations. The eggs on the paper were hatched whenever the atmosphere was as warm as 58°, and especially if rainy or damp; whilst very few of those on the linen were hatched until the thermometer rose to 68° and 70°. It seemed to me, that the retardation of the hatching process in our variable climate, until the food for the worms should become abundant, will form one of our difficulties in raising silk; unless we are provided with very deep dry cellars, or other subterraneous places of deposit. Our common cellars are not sufficiently deep; and I should think, in order to preserve the eggs effectually until the propitious time for hatching, that the place of deposit ought to be so deep as to give invariably the mean temperature of the earth, say, somewhere, perhaps, about fifteen or sixteen feet. If the eggs were placed in a close box, a dry well might answer the purpose; but an ice-house would be best of all.

On the 18th of April, the thermometer rose to 68° and then the hatching commenced briskly, but more so on the paper than on the linen. On the succeeding days, the thermometer at 70°, and rainy, they hatched on both substances abundantly. It is very manifest, that humidity combined with warmth greatly accelerates the hatching—as they hatched on two cloudy, dripping days as fast, with the thermometer at 58° to 61°, as they did on two dry days, with the thermometer at 68° to 70°. The hatching was not completed until the 26th, and on the dry days I thought it was accelerated by keeping basins of water standing on

the tables. It is a curious fact, that the periods of hatching were chiefly in the mornings, between 6 and 8 o'clock, and again, in smaller numbers between 12 and 1 o'clock, P. M.

On the 18th of April, when the general hatching commenced, the white and the Italian black mulberry leaves were grown as large as a silver dollar, whilst the native mulberry was still in very small leaf. On the night of the 25th of April it became suddenly very cold, and on the morning of the 26th there was ice. My worms, at last, were hatched out too soon for this season, and ought to have been retarded, if practicable, at least ten days later. They became very torpid, and it was well they did so, for in that state they required no food; and the native mulberry leaves were entirely killed, whilst the foreign ones were much blighted. It continued very cool for two days, during which time, although the room was kept warm by fires to 66°, yet the worms remained very lifeless, with no disposition to eat. On the 28th, the weather moderated—the thermometer rose to 58°, and the worms came rapidly to life, and began to mount upon their food. This gave me an opportunity of remarking two things; first, that the worms are very hardy creatures, as none perished; and second, that 68° of fire heat is not as friendly to their vitality as 58° of atmospheric warmth. The frost cut us short of food, but we made shift to sustain the worms for a few days on the few uninjured foreign mulberry leaves, and as vegetation now went on rapidly, we soon had an abundance.

Judging from the growth of the mulberry leaves this season, and from the harsh and variable weather of the first weeks in April generally, I am apt to conclude that if we could manage the hatching *at will*, the 25th of April would be early enough to expose the eggs for that process. Indeed, I should say it is the best time—if earlier, food will be precarious—if later, the intensely hot weather of the first weeks of June renders the worms lazy and sluggish; indisposed to spin, and making light cocoons; or else forming chrysalids, and not spinning at all.

From the 28th of April the worms fed well, and grew finely. As I had but few foreign mulberry leaves, either white or black, I only fed on them for the first eight or ten days. After that time, they were fed exclusively on the leaves of the native mulberry. I could perceive no difference, either in

the voracity with which the worms fed, nor in their growth and vigour, from the two kinds of leaves. They throve well, and equally so on both. The nights in the first part of May were cold, (thermometer generally about 56°,) and we were obliged to give them fires in the mornings, which never failed to give them activity and a disposition to eat more greedily; after this, no untoward circumstance occurred until the 24th of May. On this day, after many days of constant cloudy and rainy weather, I, all at once, perceived, on a part of a table, directly under a window which had been accidentally left hoisted, and across which the wind had blown the moist and fine rain, about 1000 worms which had become bloated, yellowish, flabby, and motionless; and many of them lying on their backs. This epidemic had supervened suddenly, for I had looked over the tables two hours before, and had perceived no signs whatever of it. I immediately had the sick separated, and removed from the healthy worms—the window closed—a fire built—and the room fumigated, by burning a few small lumps of salt petre on a shovel of embers. These measures put an immediate stop to the further spreading of the disease. The fumigation restored the sick, so that the next day, they were as voracious as ever, and few or none perished. I also remarked that the fumigation seemed to invigorate the healthy worms, as was manifested by an increased eagerness in feeding. Thus finding the fumigation apparently so salutary to the worms, and especially as it acted very effectually in rendering the room more comfortable to the attendants, by destroying the offensive smell, I continued to repeat it once or twice every day afterwards, until the worms had all climbed for forming their cocoons.

This was the only disease that appeared amongst them from first to last, except prior to this, and about their third week, a few instances of what is, by some, called the black-tail, occurred; and in every instance proved fatal. This disease gave no indications of spreading as an epidemic. Mr. Smith, of Baltimore, says that this disorder is an inflammation of the rectum attended with costiveness, arising from indigestion. The seeming black-tail is the rectum protruded by straining, which terminates in mortification. It is said in the American Farmer, that this disorder can be cured by feeding the worm on the oak leaf—I offered this remedy but they would not take it.

On the 20th of May, about one month after the general hatching, a few worms quit eating, and commenced travelling about in search of some object on which to climb for the purpose of forming their cocoons. We now began to set their scaffolds over the tables—some of these were made of bundles of chinquapen bushes, and some of sedge grass. The latter of these we found most convenient to ourselves, and were preferred by the worms. They continued to climb from this time until the 5th of June. The tediousness of this process was owing to their irregular manner of hatching, arising from the fact of being unable to keep back that process until the proper time, when they would have all come out nearly together. It seems to me to be of the first importance, that we should be able to regulate the hatching *at pleasure*—and then by selecting the warm days, which may occur about the 25th of April, the eggs would nearly all hatch in four successive days. This would enable us to keep each day's brood on a separate stage or table, the advantages of which would be very great. They would then eat alike; grow alike; the tables would be easier cleaned; they would moult on the same days; spin at the same time; and instead of sixteen days, as in the present instance, they would complete the business of spinning in five or six days. Moreover, the worms will thrive better, because you will not be obliged to disturb them on their moulting days, which injures them; and the young will not be over fed, nor the old under fed; but all may be fed with the exact healthy quantities for each day, according to their ages. (See Von Hazzi's tables.)

On the 4th of June, the moths began to cut through their cocoons, and to deposit their eggs; and on the 15th, this process was finished, and the moths were all dead. They deposited their eggs on flaxen linen—we preferred this substance, because it was obvious the eggs were not disposed to hatch so prematurely on it, as on the paper. For the first two weeks, I found it impossible to hinder the hatching of the new eggs: after that time they ceased to hatch without any effort on our part. Several thousands, however, were hatched, and as a further experiment, I had some of them attended for a second crop. The worms throve very well, and made cocoons; but their cocoons were very thin and light, and some of them mere webs of stuff like floss.

As I was desirous of obtaining eggs, a small proportion of the cocoons only were baked for killing the moth. I was very particular in weighing, and accurately ascertaining the product of my crop. From about 6000 cocoons there were 37 oz. of cut cocoons or such as the moth had cut through; called floret silk—2¾ oz. of baked cocoons, and 5 oz. of flos, i. e. the loose webbing around the cocoons. It took 153 cut cocoons to weigh 1 oz. in which ratio it would require 2448 cocoons to the pound of 16 oz. It took 44 baked cocoons, in which the moths were killed, to make 1 oz. i. e. 704 to the pound. If the whole of the cocoons had been baked, there would have been 8lbs. of them.

According to this result 1,000,000 worms would yield 1333 lbs. of baked cocoons and 60 lbs. of flos. But the question on which the merits of silk raising must depend is, what would the baked cocoons and flos sell for? From my experiment, I should think, 20 hands, most of whom might be boys and girls, could very easily attend and rear 1,000,000 worms; and were the buildings and fixtures complete, and food plenty, I am quite sure the product would very far exceed, in proportion, the product of my crop. The spring was so unusually unpropitious; and my arrangements were so imperfect, that I have reason to believe, the cocoons were smaller, thinner, and consequently lighter than they might otherwise have been. The weight and richness of the cocoon will depend on the health and vigour of the worm; and this again upon the feeding and management of them.

I sent on a specimen of the baked cocoons to Mr. Skinner, of Baltimore, with a request that he would favour me with an opinion of the quality of the silk. He turned them over to Mr. Smith, as a competent judge, who wrote me that the "silk was equal to any, and better need not be desired." Unfortunately, however, the whole number sent (one or two dozen) proved to be double, that is, two worms had worked in one cocoon, and, therefore, they could not be reeled.

I have understood there is a market in Philadelphia for cocoons, at 50 cents per pound. Taking the product of my crop as an average, the profit of 20 hands, supposing them to cultivate 1,000,000 worms, would be at 50 cents per lb. about $666 for about six weeks employment. But I am under an impression, from some authority which I cannot lay my hand on just now, that in Europe, the lowest

market price is never less than $2 per pound; the profits then, at that price, would be upwards of $2600.

But to cultivate silk successfully, much will be found to depend on plenty of space; and still more on sufficient ventilation. Ventilation is important to the health of the worms, but still more so (especially in the latter stage) to the feeders and attendants. During the latter stages of the business, in spite of every precaution, my room became exceedingly offensive. The tables were cleaned every day; vessels of lime-water were kept in the room, and fumigations of saltpetre were employed daily, and yet the room was very disagreeable.* As to space, every 1000 worms ought to have, in their last age, six feet square, or thirty-six square feet. And if the worms were kept and fed upon sieve-bottomed frames, which might be cheaply constructed, and raised two or three inches above the tables, so as to allow the litter to fall through, it would greatly facilitate every process in their whole management, and especially the business of cleaning the tables.

There are few employments in life but have their peculiar evils, and this, I apprehend, is not exempt from the general rule. With due preparations and arrangements, I should think the culture of silk, not more unhealthy than many others of our employments; nor, indeed, so bad as many branches of manufacturing, or the cultivation of rice and indigo. The European writers contend that it is a perfectly healthy business, but it is due to candour to say, that I found it, in the latter ages of the worms, not only extremely offensive, but decidedly unhealthy. Several members of my family, whose curiosity was alive to the novelty of the subject, and who frequently visited the room, became more palid and sickly in appearance than I ever new them; those old enough to describe their feelings, uniformly complained of singular sensations of something like a constant constriction from temple to temple, and a sense of compression on the front part of the head. I, myself, suffered from it severely, and could, at any time, have the feelings aggravated by spending only a few minutes in the room with the worms, which was immediately mitigated by going again into the open air. None of us were really sick, but indisposed; with impaired appetites; and I strongly believe

* Would not the use of chloride of lime be more effectual?—Ed.

if we had been exposed to the effluvia much longer, that the family and attendants would, likely, have contracted typhus fevers. It must be remembered, however, that my arrangements were ill adapted to the business. The room was too small, and insufficiently ventilated—the worms, when they grew large, were very crowded; and I was not provided with proper facilities for cleaning the tables.—Under a more perfect system of arrangements it is not improbable that no such inconveniences might be felt.

Upon the whole, it seems plain to me, that if the inhabitants of our poor healthy pine lands, of the middle country, could be induced to adopt the cultivation of silk, it would effect a great revolution for the better, in their circumstances. The mulberry trees, both white and native, flourish well on these soils; and it is almost a moral certainty, that the natural salubrity of those regions, under a proper system of arrangements, would counteract every noxious influence arising from the employment. Their profits would be comparatively very great, and another valuable staple would be added to the state.

I think it worth while to mention an experiment I made with fifty worms. I placed them, as soon as hatched, on the leaves of a species of barren mulberry, which is cultivated here for shade; and which is not improbably the *morus papiriferus*. For the first two days they perforated the leaves, but grew none. After that time, they ceased to attempt to eat, although they were tempted to it by regular supplies of the fresh leaves. On the third day, several had perished; and on the fourth day, all were dead but three, and these were smaller than when first hatched. This was conclusive that the leaves of that species of mulberry will not serve as a substitute for the other kinds; a fact much to be regretted, because of the great ease with which it is propagated—the rapidity of its growth, and the abundance of its foliage.

If you are in possession of any information on the subject of a market for cocoons, and their price, I would suggest the propriety of publishing it in your valuable Southern Agriculturist. JAS. DAVIS.

We have already done so. *(Vide last No.)*—EDITOR.

ART. II.—*Observations on the Apathy which pervades the community of the Southern States, relative to the improvement of Agriculture; by a* RUSTIC.

"Columbia, January 10th, 1831.

Dear Sir,—Although this is addressed to you, it is not intended for *your* benefit; for it is very evident, that you are sufficiently alive to the necessity of efforts being made in these Southern States, for the improvement of their agriculture, to render such a paper of any use to *you*. Its object being the benefit of South-Carolina and neighhouring States, I beg you will insert it in your extensively circulated periodical, for the public good, which it may produce, if attended to, and I do not mistake the correctness of the views it holds forth.

Notwithstanding the valuable communications which a few individuals occasionally send you for publication, it must be confessed that we are universally deficient in due and efficient exertions for the ameliorating of our condition, by extending knowledge, and affixing scientific basis to our agricultural pursuits. It would seem, by our apathy, in this respect, that agriculture was to us scarcely even a secondary consideration, a pursuit, the objects of which, ignorant men may be allowed to prosecute, as these are harmless and cannot affect society materially either in good or evil! Indeed, some who consider themselves the better class of society, appear to act as though the tilling of the soil was an abject and merely mechanical calling, nearly useless and only allowed to exist by sufferance. It might be thought an invidious retaliation in me, who belong to this tilling class of men, to point out the consequential airs of the cits, whether belonging to the counter or the various *bars*. We might acknowledge their undoubted superiority over us, by the greater, or indeed, the almost exclusive countenance they receive from legislative enactments. Do we not see, in fact, that ninety-nine hundreth of the laws passed, are for their benefit, and that poor agriculture is left to shift for itself, and never receives the protecting and encouraging help of government, so as to enable it to meet the other professions on an equal footing. I must have been much mistaken when I selected it as a pursuit calculated to pro-

duce benefits to the country. It is at all times, a hard task for a man to acknowledge his errors, and almost persuaded as I am of mine, in this case, I can scarcely bring myself to confess it. Still I allow that every circumstance demonstrates clearly that my choice was founded in error, since the collected wisdom of the country declare it so by their absolute neglect of the one, and its extreme watchfulness over the welfare of the others. In fact, are there not extensive and and richly endowed institutions, with well paid professors, for the promotion of all useful knowledge, in divinity, law, commerce and medicine. Surely, if agriculture was of any value in this country, as it is in some others, establishments for its promotion would have been formed, or, at least, some professorship attached to some of the other institutions, intended to exalt this neglected object. What are the banking institutions, the officers, the fortifications, the light-houses, and the navy itself, but establishments for the protection of commerce? What are all the officers of the judicial department, with high salaries, but for the comfortable support of the incumbents, together with the promotion of the good they may do, perchance, to such of the community as, unfortunately for the greatest numbers of them, have dealings with them? It is admitted that despised agriculture is not excluded from a chance of the benefits that may accrue from these several favourite establishments; but there is not one, that I know of, supported by government for its encouragement. We have, it is true, some few agricultural societies throughout the State; but, without the fostering hand of power, without funds, what can they do? Yet they do some good, about one hundreth part, probably of what they might do. It must be, however, infatuation on the part of those persons who keep them up; for what has become of the United Agricultural Society of South-Carolina? it has died of inanition, and if the existence of such societies had promised any advantage at all to the community, would it have been suffered to perish thus miserably, as it has, in the very arms of our assembled wisdom? Notwithstanding all these unanswerable proofs of the worthlessness of agriculture, my habitual and rustic obstinacy will not yield, and it continues refractory to the superior sense and polished reasonings of the followers of the more favoured professions.—You must not suppose, Mr. Editor, from all I have said,

that I blame these valuable citizens here alluded to. No, they take care of themselves and of their concerns, and if they do not carry their views further, I exculpate them of any sinister intentions; and, indeed, it would seem strange that persons, who from their habits and pursuits, know little or nothing of the profession, the neglect of which I deprecate, should take a very active part in promoting its interests. Those most to be blamed, assuredly, are the very professors of the slighted art whose cause I would attempt to advocate. They are most undoubtedly those whose business and duty it is to procure for their profession the assistance it needs. What is it that keeps them so blind, I will not say, to their own interest; but, as I do not acknowledge myself convinced of the contrary, I must say, to the very best interests of their country? How I regret I have not the skill of those belonging to that profession whose chief business it is "to make the worst appear the better cause." I might then do what I think far more righteous, make the better cause really appear such. It might, perhaps, be shown with some appearance of reason, that a country without inhabitants, whatever be its capabilities, is a very poor one, even for the favoured professions. The community might, perhaps, be made aware, that to this neglected agriculture they are indebted for every thing that renders civilized man superior to the savage. That not only their food, clothing, &c. &c. but their very existence as a people depend almost solely upon it. The great city of Charleston itself might perceive, to its utter astonishment, that without the country back of it, it would be only a miserable village of fisherman, and that as it is, almost its sole dependance for support and protection, at all times, and under any circumstance, is to agriculture. And, pray sir, what do you think would be the effect of such a strange revolution in their knowledge and modes of thinking, if it could be operated? Do you suppose that they would again, in their exclusive wisdom, ship off to the North, hardy, honest cultivators of the soil coming from Europe to their *hospitable shores?* Would they not rather make great exertions to induce emigration from foreign lands to our almost deserted middle country? Would they not, instead of going to the North, to be made dupes of for their money, come up with some of those worthy foreigners to form establishments which may, hereafter, prove not

only sources of profit to themselves individually, and to the revenue of their native State; but also be the very foundation on which their existence may rest, they would, of course, have learned that a hardy and industrious population of cultivators of the soil, are the very bone and sinew of a country like this, in peace or in war, the very blood of its existence. They might also become aware that it is in vain to cry to Jupiter, help, help; for he will not help us unless we put our shoulder to the wheel. They would, therefore, instead of waiting supinely for better times, exert themselves to produce them. They would exert their utmost efforts to prevent the emigration of their citizens, and to promote emigration from abroad, obtain from government means of doing these things, without which the government itself will, in time, vanish away. They would establish schools in which the most useful art of all, in my obstinate opinion, can be learned as well as others. They would not only form societies for the promotion of agricultural knowledge; but have them endowed liberally, without which their exertions can be only of small avail. They would establish experimental farms in which the culture of valuable foreign plants would be tested in various ways, and in different sections of the State. These experiments would be made by persons of skill, many valuable plants and useful animals might be imported from distant countries and inured to our climate. Individuals who, with the best possible intentions, are compelled to cease experiments for the want of means to prosecute them to successful issue, would thereby not only be saved from impending ruin, but incalculable advantages would be secured to the community by the successful result of experiments, the failure of which by an individual of slender fortune, was merely occassioned by the necessity of his attending to the objects of his immediate wants. Such a failure generally deters others from attempting the same thing. We should then have some right to complain, on very good grounds, that all the praises bestowed on our naval officers, consuls and ministers to distant countries, are only half deserved for bringing foreign plants, seeds, &c. to be naturalized in this; for they have hitherto, almost invariably bestowed to the North those productions which cannot be cultivated there, except in hot-houses!! while the Southern States are scarcely ever thought of in the distribution. It has been for years past

a source of vexation to reasonable men, to see such unreasonable derelection of propriety. Several plants which, but for this infatuation, might at the present time be in extensive and profitable cultivation at the South, have been suffered to perish in the hot-houses, &c. at the North. There are also many plants which might prove sources of prosperity to posterity, and which therefore ought to be supplied from foreign parts at public expense; for they are such, (at least some of them,) which cannot benefit the individual who might import them; although they may become indispensable at a future day; and the expense of procuring them can be but comparatively trifling. As one of these, the cork-tree may be particularized, and the want of it, when the vine is extensively cultivated here, may be a serious obstacle to its further extension. An individual may import for curiosity, or the benefit of his country, a small number of them, a dozen or so; but thousands are wanted, and would undoubtedly grow luxuriantly in most parts of the Southern States, and add to its present ornament and future benefit. The same might be said of many other most valuable objects of culture; but it is needless to enumerate them here. I would not have you think, Mr. Editor, that I would advocate the benefiting one class of society at the expense of another. A State, like a family, can regulate its own concerns as it pleases; and the measures for increasing the population of a country, where it may be desirable, is surely an object of general interest for that particular country. The benefits arising from it, as also for its augmentation of individual as well as of public wealth, by the extension and improvement of its agriculture; the security thereby obtained of public tranquillity, external as well as internal, are surely objects of such public concernment, that the government alone can and ought to promote.

Is it not true, that for one family that removes to this State from abroad, at least fifty remove from it? Why is it so? Let me not be told that the richer lands of the West attract *unavoidably* our population. When agricultural men are comfortably situated, carrying on their operations with proper industry and suitable knowledge, they are too happy to wish for a change, the advantages of which are, at least, doubtful. Our soils are good, so is our climate. Our lands are cheap, and easily obtained for the settlement of numerous families; why then go elsewhere, to encounter,

most probably, an unhealthy climate? Where is the patriotism of those who say "it cannot be helped," when the smallest exertion to prevent it has never been made? Where is their *amor patriæ*, the love of the very soil that witnessed their birth, and the sports of their infancy; their love of their children and their posterity, when they suffer things to go on thus to certain destruction, without taking one step to avert the impending calamity? Whence will you draw your power to suppress insurrection at home and oppose aggression from abroad, when you will have suffered, by your own indolence and apathy, your own strength to be thus dispersed and wasted away? These are solemn questions, which every one may answer to himself as he best can; but at the same time it is the duty of all to act seriously, and put a stop to the destructive process going on under the protection of our negligence and blindness.

Rouse your energies, you men of the soil, claim your share of the expenditures of your government whose coffers are filled from the proceeds of your labours; have your profession placed on a footing of true respectability, by placing it on the road that leads to perfection, and thereby save your country. Or go on as you have hitherto done, and your loss of freedom and independence is at hand.

It is passing strange that, with inferior means proceeding from soils and climates, our Northern neighbours are far exceeding us in the successful cultivation of those things for which we are so eminently situated! They are entering largely on the culture of the vine and the silk-worm, they have extensive flocks of sheep, they raise a superabundance of bread, meat, horses and mules for their own use, and with the surplus of them, they drain our purses. All these we might raise, at least, as far as our consumption may render it necessary, and some of the articles, such as wines, silks, olive-oil, wool, &c. might be, before long, most profitable objects of exports.

That time is past when we might have rested satisfied with two or three principal staple objects of exports, without aiming at an increase, either of them, or of our population. The world is progressing rapidly in industry and knowledge, we must not remain behind, and this we shall surely do, unless we make now the most vigorous efforts to regain our proper rank. See how power is accumulating in other parts of these United States by means most un-

doubtedly within our reach, if we will but avail ourselves of a part of our natural advantages. "Knowledge is power;" but like the productions of the soil, it must be planted, and carefully, and sedulously cultivated, before it can produce a profitable harvest. We have all the materials for its successful production, let us not throw them away, on the contrary, let us make uncommon efforts to raise gradually, though energetically, a fabric which may serve to perpetuate our approximations to perfection; a fabric which will extend, not merely over ourselves, but over our latest posterity, an imperishable ægis.

These are not times that will allow of remissness; for as truly as it is that we are now too passive and regardless of our real interests, so truly will the direst calamities await us, if we neglect any longer to rise and be doing. Believe me, though these are only the admonitions of

A RUSTIC.

ART. III.—*On the best mode of applying Cotton-Seed as Manure; by* JAMES KING, Sen.

Sir,—I have observed in your July Number, a request for information on the using of cotton-seed as a manure. If you should think the following, on the subject, worth insertion, do so:—

I had, some years back, been convinced that the manner of applying the cotton-seed as a manure, was both wide, as to its economy in the application, and in its effect on the crop as to what it might produce by a different mode of using it; and from seven years experience, I have found I was right in my views on the subject. In commencing my change in its use, I applied it on the listing, which was more beneficial than the surface application on the bed; but I still was not satisfied, and my present mode is, to break up the alleys of the intended corn or cotton field, by running a shovel or bull-tongue plough through them, I then strew a peck of seed to the task-row furrow, and list over it; this

mode I proved last year, by planting two acres side by side, and measuring the separate productions, I found the manured acre to yield something more than double than that which had no seed; my test was by corn, but have no doubt of its equal effect on the cotton crop; that is, by a peck of seed to the row, on one acre, and no manure to the other one. Cotton seed was scarce this season, but I have no doubt that if two pecks were used per acre, the yield would be a triple production on worn out land.

My further view on its uses is, that if it be so applied early in March, and a rough and coarse listing is its first cover, and a half bed, or two furrows by the bar-shear plough on that, and it be settled into the listing by chopping it in with the hoe, that then by its chemical and mechanical effect on the list, and on the soil, it is superior to any process whatever that I have yet discovered. I think it ought to be a chief object with the planter to retain as much vegetable matter as possible on old field lands, whatever be their soil; as in clays its effect is to open that which is too tenacious, and in attracting the radical of the plant by its interstices, and leading it to its further expansion; and in silicious earths, decayed vegetable is the foundation of any profitable production, and the chemical action of cotton-seed, in breaking down coarse vegetable fibre, by a rapid decay is, in effect, the desideratum for which I know not its equal; and if a sufficient cover of earth is given to prevent its shooting through the surface, no part of the benefit of the seed on the soil is lost, but the earth is so imbued by its vegetating stimulant or gasseous process, that it continues its effect to the perfecting of the crop, and carrying it through an excess of wet or drought, superior to any other manure.

Yours respectfully,

JAMES KING, Sen.

N. B.—It ought to have been observed, that vegetable manure on calcarious soils, which by nature are too hot to bear any excess of dry season, are thereby, (if properly combined with the soil,) brought to a never ending state for profitable production in any common season.

St. Paul's, Little Britain,
July 6th, 1830.

ART. IV—*On the Establishment of Vineyards in the Southern States, with some Remarks on the Vines proper for this purpose; by* A. GEIGER.

"Mount Gill, Lexington, Nov. 24th, 1831.

Dear Sir,—In answer to your's of the 5th inst. I do at this time, and will, at any other, with the greatest pleasure, give any information that may be desirable to yourself, or you may deem beneficial to the public. I have, for the ten or twelve years past, paid every attention to the cultivation of the grape-vine, sparing neither labour nor expense. I have thirty-two acres in vines, containing between thirty and forty thousand plants. The greatest disadvantages experienced in the commencement of this new undertaking, consisted in not knowing what vines were best adapted to our climate. I therefore planted of all kinds I could get; and my first planting was a mixture of native and foreign vines. In the course of four or five years, I ascertained that none of the French vines upon which I had been experimenting would answer, (although Mr. Niferd, a gentleman in Columbia, has a considerable vineyard, consisting of French vines, which produed remarkably well the last summer. If they should succeed in our State, I must acknowledge that I have been mistaken in the experiments which I have made upon them.) The reasons which have led me to believe that the French vines will not answer in this climate, are these:—They will uniformly vegetate in the spring, three weeks earlier than the Madeira vine, and are much more tender. They are liable to be materially injured by the spring frosts; and in fact, they are frequently killed to the ground. And, besides, the grapes of the French vines are as subject to the rot as those of any other vine. These are the objections which I have to the French vines. I am also of the opinion, that our native grape vines, of this State, will not answer for cultivation; as all the objections which I have to the French vines, will equally apply to the native; and at the same time, the grape of the native vines partake of none of the good qualities of the French grapes. I have also abandoned the cultivation of these. The only vines which will answer for cultivation in the middle country of the two Carolinas and Georgia, are

the Madeira, the Blands Madeira and the Scupernong. The two former are the only vines I cultivate, the only two which I think worthy of the attention of the vine planter, and the only vines which I could recommend to any gentleman who intends setting out a vineyard. These vines, in the very poorest spots in the middle country of our State, would produce from two hundred to a thousand gallons of wine per acre, could any means be devised to prevent the destructive ravages of the rot in the grape. Were it not for this disease, there might be produced in this State, wine to supply half of the United States. The great advantage which the Madeira vines have over others, I conceive, principally to consist in this, that if the bloom should be blighted by the spring frosts, they will yet shoot again, and produce from a quarter to half a crop.

With regard to the probability of the vine ever becoming a profitable article of cultivation to the planter, upon which you desire my opinion, I conceive it to be highly problematical, unless there can be some discovery made to prevent, at least in part, the destruction of the grapes by the rot. Taking the produce of my vineyard only for the last three years, and taking into computation the labour and expense for that time, as a criterion to judge by, I should say, that the produce of my vineyard has, by no means, afforded an equivalent for the labour and expense. For the last three years, my vineyard yielded only something better than one thousand gallons of wine, when it should have produced five thousand gallons yearly. However, I still hope for better success, and that the cultivation of the vine will eventually succeed in this State, I will never despair of. This disease may, in a few years, finally disappear, as it did in our cotton, and a full crop of grapes in three or four years, would amply compensate the planter for his partial failures. I have never been able to discover the cause of the rot in the grape. Grapes are subject to this disease some years, in all situations. All the means I have resorted to, to prevent it, have failed of success. I will yet try others the coming season, should I live; and should I succeed in the discovery of a preventative of the rot, the great desideratum in the culture of the vine, it will afford me great pleasure to let you know.

You wish to be informed of the age of my vines. I will put them in three classes, the first, comprising seventeen thousand, from six to twelve years old; the second, six

thousand, three years old; the third, ten thousand, one year old.

To your inquiry, whether wines may be made as good in this as in any foreign country, I answer, that grapes grown in the Southern States, from the great duration of the summer, may mature to the greatest perfection, and from sound, well-ripened grapes, good wine can only be expected. The making of good wine requires practical experience, and after a few experiments, I am well persuaded good wine may be manufactured. It is too common with us, and too much to be regretted, that as soon as wines are made, they are brought into market, which operates greatly against the reputation of our domestic wines. Wine ought to be kept in the cellar at least four years before it is offered for sale, and will, within that time, if properly attended to, change every year for the better, if it has sufficient body. New wines are unfit for use, until they become mellowed by age. So with brandy, rum and whiskey. Surely no one will say these liquors are palatable, when first run from the still. With respect to the mode of planting, training and trimming the vine, I conceive it altogether useless for me to say any thing. On these subjects enough has been written to confuse all new beginners in the cultivation of the vine. I would advise any gentleman, who intends the cultivation of the vine, to make a visit to a vineyard, where he may, in practice, see the whole operation, which will be infinitively of more advantage to him, than reading theoretical writers for ten years on these subjects.

Should you deem this communication, in answer to your inquiries, worthy of a place in your valuable work, the Southern Agriculturist, I shall feel myself highly gratified; if not, commit it to the fire. A. GEIGER.

ART. V.—*On the Introduction of Sea-Island Cotton into Georgia; by* THOMAS SPALDING, *Esq.*

In the 42d No. vol. 12, of the American Farmer, is published a letter from Dr. Mease, to the Editor, inclosing one from a Mr.

Patrick Walsh, to John Couper, Esq. of St. Simons, which Dr. Mease deems important as settling "the question as to the source of the Sea-Island cotton seed." The account which Mr. Walsh gives, is, that the seeds were sent by him, in 1786, to Mr. Frank Levett, who had emigrated to Sapello-Island at his instigation. The first part of his letter contains an account of the movements of Mr. Levett, prior to his fixing his residence in Georgia, and the following is the account which he gives of the introduction of Sea-Island cotton into that State :—

"Early in the year 1786, I sent him a large quantity of various seeds of Jamaica, and as Mr. Moss, and Col. Brown requested me to get some of the Pernambuco cotton seed, I also sent to Mr. Levett three large sacks *of which he made no use but by accident.* In a letter to me in the year 1789, he said, "being in want of the sacks for gathering in my provisions, I shook their contents on the dung-hill, and it happening to be a very wet season, in the spring, a multitude of plants covered the place ; these I drew out and transplanted into two acres of ground, and was highly gratified to find an abundant crop. This encouraged me to plant more, I used all my strength in clearing and planting, and have succeeded beyond my most sanguine expectations. This year I have every prospect of gathering twenty tons of clean cotton. * * I am, &c. PATRICK WALSH."

This account appears, unfortunately, not to be correct, as will be seen from the letter which we give below, from Mr. Spalding, originally addressed to the editors of the Savannah Georgian. We really should be glad to have recorded the true origin or introduction of all of our staple articles of culture. It will be interesting hereafter to look to these records, when those who are now acquainted with the facts, have been gathered to their fathers. We therefore invite all of our friends to furnish us with all such information as they possess relative to the introductions of Sea-Island and Upland cottons, rice, indigo, &c. not only into these States, but even into their several districts. We wish, in our journal, to record all facts connected in any way with them.—*Ed.*

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"Darien, January 28th, 1831.

To the Editor of the Southern Agriculturist.

Sir,—At the instance of our worthy friend, Mr. Spalding, I have the pleasure to hand you the following copy of a letter, the original of which is, by this mail, forwarded to the Editors of the Savannah Georgian for publication.

I am, very respectfuly, your ob'dt. serv't.

EBEN. S. REES.

" Darien, January 25th, 1831.

Dear Sirs,—I was sorry to read in your paper, and to see copied into Mr. Fell's, an old and idle letter from a Mr. Walsh, of the Havana, to Dr. Mease, of Philadelphia, upon the introduction of Sea-Island cotton into Georgia. What is curious, there is but one sentence in the letter, that I do not know, personally, to be untrue. Twenty persons, at least, were cultivating Sea-Island cotton, upon a small scale, in Georgia, in the year 1789. The Georgia Sea-Island cotton is not the Pernambuco seed; it is the Auguilla seed, a small island in the West-Indies. The Pernambuco seed, is the kidney seed cotton—it was tried by many of us and rejected.

The Auguilla seed came to us, through the Bahamas, in the year 1785. The late Gov. Tatnall received it from his his father. My father received it from his friend, the late Col. Kelsall, of the Bahamas—many others may also have received it at the same time.

I knew Mr. Levett, before he came to Georgia; I knew him intimately to the period of his death—his manager and negroes cultivated indigo, adjoining to my father's plantation on St. Simon's-Island, when *two* persons on the Island were growing portions of Sea-Island cotton, to wit:—my father and a Mr. Alexander Pisset. Mr. Levett never lived for *one* day on Sapello-Island. I have known the Island, and its inhabitants and its owners from my infancy.

I have owned one half of it for thirty years, and I knew Levett and his movements for more than fifty years back; he was an enlightened, sensible gentleman, who would have been greatly astonished, could he have read Mr. Walsh's letter.

I will only add, that cotton will not bear transplanting from a dung-heap, or from a prepared bed; many have tried it, and all have failed in the attempt. John Couper, Esq. of St. Simons, is probably, with myself, the only persons surviving, that will remember much of the introduction of Sea-Island cotton into Georgia.

I have believed sirs, it was a duty which I owed to the persons who interested themselves in the introduction of Sea-Island cottons into Georgia, to put down the pretensions of Mr. Walsh, which long since would have been noticed, had they not been buried in a book of little circulation.

I remain Gentlemen, &c.

(Signed) THOMAS SPALDING.

Art. VI.—*On the Culture of the Irish Potatoe; by* E. A. Holt.

" Richmond County, (Ga.) January 17th, 1831.

Mr. Editor,—After two years experiment in the culture of the Irish potatoe, I feel warranted in giving you my method of raising this vegetable, and I am confident that success will crown the attempt of any one who will pursue the same course that I have done in the plan of raising the Irish potatoe, by a fine crop of the best quality. The Irish potato does not grow as well in a Southern as a Northern latitude, at least I am under this impression, and the cause of it is, that ours is the more arid; this potatoe delights in a moist climate, and it occurred to me, that any culture which would, in some measure, obviate this dryness of our spring and summer, would do well for the Irish potatoe. I had planted for three years with but poor success, but my two last crops cultivated after the manner I shall presently state, were very fine—they were large and mealy; we had them earlier than usual, and they lasted, (digging but as we wanted them for use,) till the 1st of November.

I will endeavour to be as plain in my statement as possible, and hope I shall be understood. In the month of February, I planted Irish potatoes; and until the middle of March *is not too late*. The ground planted, was poor pine land, furrows laid off three feet apart, and manured plentifully in the furrow, drew some dirt on the manure, which made the surface of the land even; cut the potatoes as usual and laid them six inches apart along on the manure, then covered them by drawing up the earth on them three or four inches deep; by this means there was a little ridge made, and the potatoes *not planted below the level of the ground*. After they were up two or three inches, drew earth to them; it is advisable to put straw along each row, to cover if cold weather should threaten to injure them. The next work, which is the last with the hoe, is to give them a moderate size ridge; this should be done when the potatoes have grown five or six inches high, and immediately after this is done, cover the ridges from eight to twelve inches deep with leaves from the woods, or any kind of straw; after this is done, you will again find your patch level, with the potatoe tops peeping out of their covering of straw—and I will

venture that at any time, no matter how severe the drought, you will find the ridges, under this coat of straw, moist. It was to this plan of covering that I was indebted for such good success as I had.

I am not of the opinion that a very large crop could be managed in this way, but to any one who has woodland near him, or who raises small grain or rice, it is very practicable to raise enough for his own table, and with not as much labour as one would imagine; I think not as much as keeping the grass out with the hoe.

I am, respectfully.

E. A. HOLT.

ART. VII.—*On Plantation Gardens, and the Culture of Vegetables; by the* EDITOR.

(Continued from page 83.)

Kidney Beans.

These are also known among us by the name of snap-beans, one of the tests of their fitness for use being that they snap asunder when bent. They are easily raised, and occupy the ground but a short time, moreover, should more be planted than can be consumed in their green state, they may be permitted to mature their pods, and the dried beans be afterwards used, when they form a wholesome and palatable dish, and for which purpose, large quantities are regularly imported into this city from the Eastern States. There are two distinct species of this vegetable, the dwarf and the climbers, and of these there are numerous varieties. The former is, however, most suitable for our purpose and is more generally cultivated, on account of the other requiring more space, and supports, to climb on; they will, however, continue longer in bearing than the dwarfs. The ground being prepared, (as we have several times directed,) let the rows for dwarfs be laid off two feet apart, and the beans dropped along at the distance of three inches from each other. The first planting need not be made before the commencement of March, for if sown before the earth

is warm enough to cause them to germinate, they will rot. They usually take about two months from the time they appear above ground, until their pods are fit for use, and they continue to bear for about six weeks. They will, however, occupy the ground much longer if their pods are to be matured. Should it be wished to cultivate the *climbers*, we would recommend that they be planted around corn in hills, three or four in each, this will be found the easiest way, as the corn not only produces its ear, but also acts as a support for the vines of the beans, nor do either appear to suffer, from this close intimacy, when a liberal share of manure has been allowed. Either of these may be had during the whole summer by planting them in succession.

Civie Beans.

This is a variety of the Lima, and is more generally cultivated among us, being more delicate and equally as prolific. It is a great favourite, and in general request during the summer—the dried pods also form an excellent dish for the winter, fully equal, if not superior, to the kidney bean. By some it is cultivated on trellasses, but more generally in hills, with a pole stuck in the centre for it to climb on; by others, it is planted in the hills of corn, and the stalks form a sufficient support, and if well manured, neither suffers by the contiguity of the other. Others again plant in drills, placing poles at regular distances. If planted in hills, and manure be scarce, let holes be made, about four feet apart, *after the ground has been made mellow* by the hoe or plough, and place therein two or three shovels full of good manure, cover it over, and plant four beans in each hill, to provide for accidents, two only should be left—before planting, however, it would be advisable to place the poles on which they are to run, in the hole, sinking them deep and making them firm, so that they may not afterwards be disturbed. These poles should be about six or seven feet high, and ought not to have their branches cut off, but left two or three feet long, over which the vines will run with great luxuriance. The most convenient way, however, is to plant them around the corn.

Squashes.

The last vegetable we shall enumerate as proper for the plantation garden, is the squash. The two principal varieties are the bush and running squash, and each of them

have many sub-varieties, which vary very little as to either productiveness or flavour. To have the largest quantity on a given space of ground in the shortest time, the bush squash must be planted, but it is probable that the running varieties yield just as many in the season, and they continue longer in bearing. It has been usual to cultivate this vegetable in hills, but we have, for some length of time, cultivated them on ridges, and much nearer than is usually done—our object being to obtain a large quantity at the commencement of the season, and for this purpose we have generally planted the white bush squash. Our plan has been to break up the ground well early in March, and either to spread the manure over the surface generally, and turn it under, or to make furrows three feet apart, and place the manure in them, and on these being first covered with earth plant the seeds so as to leave the plants, when they are finally thinned out, at a distance of from twelve to eighteen inches apart. This will be considered very near by many, but we are satisfied that more will be obtained in this way, from any given extent of ground, than the usual mode. In order to have them regular on the beds, it will be necessary to plant very close, for many will not come up, being false, and various accidents may destroy them after they are up. As soon as they have the two first rough leaves out, they may be thinned to the distance they are to remain, and if any have failed, their vacancies may be supplied, by transplanting those which are thinned out. About this time, or perhaps earlier, it will be necessary to hoe them, for no grass should be permitted to grow among them, or any other vegetable. The earth should be loosened around and between, and a little drawn up to their stems. The plough and cultivator will be found very useful, and can be worked, in the same manner as has been directed for other vegetables, the culture of which we have given. Should the running squash be preferred, a greater distance must be allowed, between the rows and each other. When the plants are in bearing, all of the fruit should be taken off as fast as they arrive at a size large enough for use, for if left to mature on the vine, it will soon cease to bear, the sap being diverted from producing more fruit to the maturing of the seeds. The cucumber, cushaw, and pumpkin may all be planted and treated like the squash,

making such alteration in the distance as the nature of the several vegetables to be planted indicates as necessary.

We have now gone through with the culture of all of the vegetables, which we deem of any importance for a plantation garden. There are many others which we have not treated of, but these are not such as would be proper to include here, being more appropriate to the private garden of the master, and we therefore, for the present at least, pass them by. In our next we will give directions for the saving of such seeds as can be raised in our climate, and with them conclude our essay.

ART. VIII.—*Reply of Wm. Ellison, Esq. to the Strictures of Col. Simkins, on his communication on Horizontal Ploughing.*

Although some time has elapsed, Mr. Editor, I must bestow a passing notice on a communication of Mr. Eldred Simkins, Sen. of Edgefield, in reply to some observations of mine on horizontal ploughing. I must confess that I read his observations in that piece with some surprise, and was at a loss to account for the cavalier tone which characterised it throughout, and my surprise was not abated when I read his continuation, in reply to Mr. Hillhouse; in which, nothing carping or uncivil appears, he apologizes to him for examining his doctrines. He commences his observations in this way, "Mr. D. P. Hillhouse, of Washington, (Geo.) in the (otherwise) sound and practical outline of agriculture pursued by him, condemns it, and Mr. Wm. Ellison, of Fairfield, seems to get a straddle of the proposition, neither positively condemning or directly approving the system." This expression is followed up by such others as these, "knotty point," "but if Mr. Ellison will permit it," "Mr. Ellison, as if to deprive some one of the credit of novelty," "it is amusing to see with what address Mr. Ellison justifies the success of Gen. Ioor's plan of ploughing," "far from attempting to compete with Mr. Ellison in geological knowledge," &c. all which, I believe to be wholly

uncalled for, by any thing in the piece replied to by him; and altogether inconsistent with that candid and dignified style of discussion, which should characterise a journal dedicated to liberal and scientific inquiry. If I had followed the first impulse of feeling, I should have answered him with some tartness; but upon reflection, I have declined doing so: for I am unwilling to obtrude into your journal any thing of an acrimonious nature. I will, however, make a few observations on some of the passages above alluded to. It seems that Mr. Simkins supposed that I was desirous of depriving some one of the credit of novelty, which he was sure was not pretended to by him. Now, I am sure that I was ignorant that the credit was claimed by any one in this State, and if not claimed by him there was certainly no necessity for the offensive imputation. I should certainly feel humbled in my own estimation, if I had been governed by the envious and contemptible motive that the observation would seem to imply. I think that any one who would think it necessary or worth his trouble to examine the Editor's notice of Mr. Simkins' piece, would see at once, the reason of my writing as I did. He speaks of it as one of the most interesting papers he had ever received, called the attention of every upper country planter to the subject it treated of, and asked their aid in the investigation of it. Said that Mr. Simkins, with a discernment that did him infinite credit, had, he thought, struck at the root of Western emigration. We hear, (he says,) of severe ploughing and cropping; of worn out lands, and of the mismanagement of upper country farmers and planters; but we confess we have been in the dark until this judicious paper came into our hands, and at a loss to know precisely what the radical error was in back country culture, which occasioned the removal of so many families into other States; where the evil began, and why it is considered by many as being without a remedy." Afterwards, in the October number, on reviewing Mr. or Gen. Ioor's communication, he says, "that while we are just learning from Mr. Simkins' communincation, a new and more important lesson, the very practice he recommends has been known, and is actually twenty years old in another part of the country."* My communication informed him, that the practice was not new here, that it had been tried by many, and by some aban-

* These observations were by the Editor pro. tem. and not by us.—*Ed.*

doned; that I had tried it and laid off my ground with a compass, (perhaps not as judiciously as Mr. Simkins,) and found it but very partially successful; that I thought he had mistaken the cause for the effect, in ascribing the great emigration from this State to negligent culture and a neglect of horizontal ploughing. This is what Mr. Simkins is pleased to call a knotty point, and asks permission to differ with me in opinion. My observations were directed to the Editor, who I thought like many respectable and well informed gentlemen in the lower country, seemed to be but little acquainted with the habit and practices of the interior and called for information. It was not intended as an answer to Mr. Simkins' piece, and controverted no positions laid down by him; but was intended to give information respecting the soil and surface of the interior, that might be useful to the conductor of this journal. I simply stated the difficulties that others, as well as myself, had encountered, and would have to encounter from the nature of the soil and surface of our country in the horizontal culture; but that it was partially successful, and, to a certain extent, beneficial. That I had not abandoned it, and in fact I do not intend to abandon it; for I have pursued the partial method, spoken of by Mr. Simkins, for four years past, and have zealously endeavoured to impress others with the advantages arising from it; and others in this district adopted it long before me; yet the result of my own observations and experiments has convinced, me that to effect the object completely, descending drains, at short intervals are necessary. If any gentleman can shew any effectual method without them, to effect the object, he will certainly confer on the country a lasting obligation; but in doing so, it will be necessary to do more than inform us of half tried experiments, and of opinions of particular gentlemen, about what might be done "with good ploughs and approved skill," but what had been done, and give us some information as to the form of the ploughs. There is, in fact, no essential difference between what Mr. Simkins states in his communications, as to results, and what I state in mine, for he does not pretend to have been but partially successful; but when I state the difficulties to be encountered, he considers my observations as objections to the system, or what he terms straddling the proposition.

As to the other passages above noticed, where Mr. Simkins expresses his amusement at my address, and modestly declines a competition in geological knowledge, I will merely observe that they wear very much the appearance of an attempt to sneer. If I were certain that such was his intention, there would be but little difficulty in treating it in an appropriate manner; but I can with difficulty believe that a gentleman of Mr. Simkins' good sense and urbanity would indulge in any such puerile an employment. With respect to the first there can certainly be no great address displayed, in supposing a difference in soil and surface, to account for the complete success of the process in the country about Natchez and the indifferent success attending it here; nor can the supposition I should suppose be any great cause of amusement. Should it, however, be a sufficient cause of amusement to Mr. Simkins, he was doubtless much amused at his own address in his reply to Mr. Hillhouse, in ascribing to much the same cause, the success of that gentleman's system without it. With respect to the last, I do not know why Mr. Simkins should so modestly decline a competition with one in geological knowledge, when he well knows that I never had the reputation of a *savant* in matters of science, and that he might have done so without being chargeable with presumption. He does so, however, to a certain extent, notwithstanding his disclaimer; but he is rather unfortunate in his selection, for the very passage selected by him for criticism shews that I stated no such absurdity, as that granite is not to be found in as great quantities in the upper country, even verging on the mountains, as in the middle country, and in some places, if Mr. Simkins chooses, far greater. With respect to the little sample of ridicule, where Mr. Simkins wishes me success in my efforts with all his heart, but much fears that my scheme of managing my gullies, will be too tedious and expensive for practical purposes. I can find no great fault with it, as I expected it, and it may as well come from him as any one else. I should, however, think very lightly of my own firmness of purpose in any scheme that I may have in contemplation if I could be disconcerted or diverted from it by any little *coup de pate*, or harmless clawing that might be aimed at it by him, or any one else. I have thought it my duty, Mr. Editor, to notice his reply in this manner, as it is in my opinion decidedly the most uncourteous production that has

appeared in your journal; and to shew that I am not unnecessarily sensitive about it, I have observed that it made the same impression, or nearly the same, on the minds of several of my acquaintainces in this district, who read it. I could not but remark the marked difference in his manner of dealing with Mr. Hillhouse, and myself; now, whatever may be the difference of respect that Mr. Simkins may think that gentleman and myself entitled to, that comity which should prevail among gentlemen engaged in promoting a common and interesting cause, should, I think, have induced him to avoid shewing it. It is not for me to prescribe rules of conduct for others; but if I thought any piece whatever, worthy of notice, I should think it entitled to a respectful reply. Mr. Simkins' private opinions may be of but little consequence to the public or myself, in the matter above stated, but it is of consequence to the utility and popularity of this journal, that harmony and courtesy should prevail among its supporters; for should it partake of the carping and snarling tone of newspaper controversy, many would be deterred from contributing to it. Much indulgence and good humour should be shewn to each other, and a hypercritical temper would silence numbers who though unaccustomed to correct writing, and of moderate attainments, might be able to impart many practical hints, and much useful information.

I will conclude therefore, Mr. Editor, by hoping, that as this is the first instance of marked uncivility of manner that has appeared in the Agriculturist, it will be the last, and by expressing my regret that I should feel obliged to trouble you with these observations, and by promising that they shall be the last of the kind that I will send for publication in your journal. WM. ELLISON.

It is the cause of much regret to us, whenever, in the discharge of our editorial duties, we give publicity to a communication, calculated to wound in the least, the feelings of any of our correspondents, we would much rather conciliate than offend, and it is more to our interest to do so. Sometimes, however, it will happen, be our intentions ever so good, and this is unfortunately the case at present. It will be recollected, that in our last volume, there appeared a communication from Col. Simkins, containing observations on so much of two former communications, (the one from Mr. Ellison, and the other from D. P. Hillhouse, Esq.) as related to horizontal ploughing. The remarks

made on Mr. Ellison's communication, he has considered uncourteous, and uncalled for. We certainly did not view them in the light in which he has, or we would have declined their insertion. It is our wish and determination never to permit a controversy of a personal nature to be carried on in this journal; for discussions of agricultural subjects it will ever be open, and we invite such, for from them much good will arise, but these can surely be carried on in a friendly manner; and as our search is after truth, facts and arguments only should be resorted to. We have departed from our rule for this once, because Mr. Ellison appears to think that he has been dealt unkindly with, but hereafter we will decline any communication, which has not for its object, the improvement of our agriculture.—*Editor.*

ART. IX.—*Query as to the best mode of Propagating the Sweet-Orange Tree in South-Carolina; by* A FRIEND TO IMPROVEMENT.

Dear Sir,—Permit me to apply, through the medium of your paper, for information respecting the cultivation of the sweet-orange tree. I have not been able to meet with any treatise written by a native of this State, upon this valuable plant: that which has appeared in the Agriculturist, being the work of a gentleman of a more southern latitude, would not perhaps be suitable to the peculiarities of our soil and climate. Aware that several of our planters have bestowed much of their time and attention upon this subject, it is my object to obtain, if possible, the result of their observation and experience. The chief obstacle to the growth of the plant, is the severity of the winter season; while it is yet young and tender, frequently killing it entirely, almost always injuring it seriously; if it survive until it acquire a few years, then it will not be so much affected by the cold, and will, in all probability, do well. There is such a variety of opinions, with regard to its nurture, as serves only to bewilder and confuse those who are anxious for information. Some recommend that the plant be protected during cold weather, others advise that it receive no

attention whatever, but that it be left exposed to all the severity of winter; both plans receive a trial and neither succeeds. Confident that experience is the only true guide, it would prove highly useful to those who intend cultivating this valuable tree, to learn from those who have already succeeded in rearing it, the methods they adopted in order to ensure its escape from the different ills to which it is liable. This is an important subject, and one upon which labour will not be lost, inasmuch as one of the noblest aims of industry, is the benefit it will afford society, and its best reward is the public gratitude. That the orange tree will succeed with us, there can be no doubt, as there are several plantations on which it is cultivated, where it grows luxuriantly, and bears well. That it is not generally planted, is rather surprising, as it serves both to beautify lands, and increase their value greatly. It would contribute much to the propagation of this plant, if a series of remarks concerning it, were written by some one who has succeeded in rearing it in this State.

A FRIEND TO IMPROVEMENT.

The sweet-orange is more cultivated in the neighbourhood of Beaufort, (we believe,) than any other section of our State, and some of our friends in that quarter can surely give the information requested by our correspondent. It will afford us much pleasure to give publicity to any observations relative to this tree; and we invite the correspondence of any of our readers, who have paid the least attention to it.—*Editor.*

PART II.

REVIEW.

ART. I.—*A Treatise on the Breeding, Rearing, and Fattening of Poultry.* London. 1819.

(Continued from page 90.)

Ducks.

Although the division relating to Ducks occupies forty pages, yet a large portion is filled with matter of but little interest to the farmer. Sixteen pages are occupied with descriptions of the several varieties, of which upwards of fifty are mentioned, and nearly all described. This might have been well enough in a work on natural history, but for our part we should have been better pleased had this portion of the work been more occupied with an account of the habits, and directions for rearing of the domestic duck, especially as nothing more than mere descriptions are given, except in the case of one or two varieties, which have a little of their natural history added. There is also much said respecting the hunting and ensnaring of the wild duck, and ample directions are given, but we do not deem them of sufficient interest to insert them here.

Of all of the species and varieties mentioned by our author, but two or three are common to the farm yard, viz:— the *common duck*, produced by the wild duck (known in some of the cantons as the dabbling duck.) The *Muscovy duck*, called also the *India duck*, and the *mongrel duck*, produced by the coupling of the Muscovy and common duck. All of these are well known and are quite common among us, but some facts relative to the Muscovy duck are not so well known, and we make a short extract from the account of that species.

"Although this species is commonly called *Barbary*, or *Guinea-duck*, it appears that it is in a wild state in South-America only. Marcgrave has observed it in the Brazils; it is also a native of Guiana. These birds perch on the large trees that border rivers and marshes, similar to terrestrial birds; they build their nests there, and as soon as their ducklings are hatched, the mother takes them, one by one, and throws them into the water;—laying takes place two or three times a year, and each is from twelve to eighteen eggs, quite round, and of a greenish white; the moulting season begins in September, and it is sometimes so complete, that the *ducks*, finding themselves almost entirely destitute of feathers, are unable to fly, and let themselves be taken alive by the Indians. These birds are as shy as our *wild-ducks*, and it is by surprise alone that they are to be shot.

"The *Muscovy duck* stocks the farm-yards of our colonies; it has long been brought into ours, where it proves profitable for its fecundity, its size, and the facility with which it fattens; but it is more expensive than any other poultry, and, to make the most of it, must be fully fed. Scaliger and Oliver de Serres have given out, that this *duck* was dumb. Perhaps, when recently transported in our climates, it had lost its voice, as our dogs lost their's in America; but it is ascertained, that it utters a very low, grave cry, unless it be put in a rage. (See the description of the organ of its voice in my note, of page 370, vol. lxi, of my edition of *Buffon's Natural History*) Larger than our *ducks*, this one is heavier and slower in walking; the male is very ardent in love, and he is to be distinguished from the birds of his species by the large portion of the organs of generation. "It will be wondered at," says Belon, "to hear that such a bird has so large a genital member, that it is as thick as a large finger, and as long as four or five, and red as blood." *(Nature des Oiseaux.)* All females suit him; he pairs with the *common duck*, and from this union arises a mixed breed which does not breed among themselves, but which intermix and produce with the common species; the individuals resulting from these mixtures, reproduce together, and with *tame ducks*. It is by crossing the two species in this manner that fine and useful varieties are obtained. See the article of the TAME DUCK."

The last part of this extract contains information which will certainly be new to many of us. It is the prevalent opinion that the mongrel duck, produced by the Muscovy and common duck cannot reproduce, and they are consequently kept only for the table, and that this opinion is not confined to us, appears from an extract given in an other part of this treatise, from *Theatre d'Agriculture*, in which it is said, that the eggs are barren. This is the case when they are produced by coupling among themselves, but it appears from what is said above, that "they intermix and produce with the common species," and that in this manner "fine and useful varieties are obtained." All the additional information relative to the mongrel duck is contained in the extract which we give below.

"*Mongrel ducks*—Such are named, in many parts of the south of France, *ducks*, springing from the *India drake* and the *common duck*; the plumage is of a very deep green, and the size a medium between that of the *India duck* and the *common duck*: but they have not those excrescences which distinguish the former; and they almost entirely lose that smell which characterises them. Many observers pretend that the male of this species, being of a very warm complexion, it would never do to give but one female, without which it would be running the risk of having none but clear eggs, of no profit; but these *ducks* being the produce of creatures of different species, they are rarely prolific. Out of one hundred eggs, according to Puymartin's remark, one hardly obtains more than twenty living individuals; but if these *mongrel ducks* breed with difficulty among themselves, they will, by pairing with common *ducks*, afford an excellent posterity; this is what Olivier de Serres has quaintly expressed in his *Theatre d'Agriculture*, in two paragraphs, which we here give at full length, for fear of altering the text. "A third species of *ducks* comes from the coupling of the *India drake* with the *common duck*; which is is to be recommended on account of the fertility of the female, and easy rearing of the young that come from these eggs; one may thus have them in abundance. This *duck* is of the size of the male, is as silent, and has the same good flesh; and of the female it has the fruitfulness of the eggs, which is increased by this marriage, the females laying several times a year; but eggs that are only good

to eat, as they will not hatch, on account of the mixture of the seeds, which is barren in generation, (as with mules) their race dies away.

"To keep up the stock, one must have a care to add a sufficient number of *India drakes* to the flock of *common ducks*: for instance, one male to five or six females, (as the former cannot serve so many females as the others) in order to have a plenty of eggs, which must be set over. as aforesaid, by the common hens, will answer your purpose. Provided, however, there is no other male but the *India* one, with the flock of common *geese*, (ducks) for fear of spoiling the whole; and, as far as it can conveniently be done, this flock so sorted out, should be cooped up in a separate place; by which means this bastard tribe will be kept up; whence you will derive agreeable usefulness, by the eggs and flesh it will afford you in abundance."

Very little is said of the common or dabbling ducks, which are originally produced from eggs of the wild duck, and it is recommended by Gouffier, to renew the race. in certain cantons, where the eggs are easily to be obtained every fifteen or twenty years. The hatching of wild duck eggs are effected under a tame duck, hen or turkey, the young ducks are easily domesticated, amidst the tame ducks and other poultry, but it is recommeded to "cut the outward part of one of their wings," lest they should fly away with the first flock of wild ducks which passes over. The first generation are smaller than the common duck, but the second and third are as large, retaining the delicacy of the wild duck, and "all the goodness and fat of our dabblers."

The prolificness of the duck is very great, she will lay, according to our author, from fifty to sixty eggs, one after the other, if she is not permitted to set. These eggs are in much request in Pecardy, for the making of cake, and although alone, they are not so delicate as those of the common fowl, yet they are equally as nourishing, and in cookery answer all the purposes. The directions given by our author for the setting and rearing of ducks, we give entire, that our readers may benefit by all that he says on the subject.

"*Setting of ducks.*—The duck is not naturally disposed to set; it is to induce it so to do, that, towards the end of laying, two or three other eggs are usually left in each nest, being careful every morning to take away the oldest, in order that they may not spoil. From eight eggs to ten are given her, according as she is able to cover them, taking particular care not to sprinkle them with cold water, as some authors wrongly advise. This precaution, at the best, is superfluous, if it is not even hurtful. To do well, they must, as much as possible, be her own eggs, or at least, these should be in greater plenty than the rest; for it appears that she sets on the eggs of other ducks with pain, and out of compliance to her own.

"The only time when the duck requires some care, is when she sets; as she cannot go to her food, attention must be paid in placing it before her; but she is content with it, whatever be its quality; it has even been remarked, that when she was too well fed, she did not set well: she must be portioned.

"Setting lasts two months. and the first broods are usually the best, because the heat of summer helps much to bring them about: the cold always prevents the last broods from getting strong, and giving ducks as stout.

"The duck is reproached with letting her eggs get cold, when she sets. Yet Reaumur says, he had a duck of the commonest species, which appeared still more uneasy about this cooling to which the eggs were going to be exposed while she was taking food, than hens appeared to be for their's;

she only left the nest once a day, towards eight or nine in the morning and before she left it, she covered them over with a layer of straw, which she drew from the body of the nest, to screen them from the impression of the air. This layer, above an inch thick, secured the eggs so well that is was impossible to guess that they were there.

"To be sure, every duck of the same species is far from giving the same proofs of so much foresight for the preservation of the warmth of their eggs, as the one we allude to. It often happens that they let them cool. Besides, hardly are the ducklings born, when the mother takes them to the water, where they dabble and eat at first, and many of them perish, if the weather is cold.

"All these reasons, and many more, too long to particularize in a work designed to present a great variety of objects, usually induce farmers' wives to have ducks' eggs set on by hens and turkey-hens: milder and more assiduous than ducks, these borrowed mothers take an affection for their young, to watch over which requires some share of attention; because, as they are unable to be accompanied to watery places, for which they shew, as soon as born, the greatest propensity; they follow the hen on dry land, and get a little hardy before they take to the water without a guide.

"It is likely, that if a considerable quantity of eggs could be collected together, to make one large brood, the art of hatching chickens in an artificial manner, applied to ducks, would be attended with the greatest success, as the latter birds are less difficult to rear than chickens. It would be sufficient to keep them shut up for twelve days in that place called duck or chicken-house: and where it would be proper to leave a few buckets of water for them to dabble in. At the expiration of this time, they might be set at liberty, and they would get on surprisingly, provided they had a slough, a little ditch in the inclosure where they might be turned in, a small rivulet.

"It is said and repeated, that the duck refuses to set on her eggs, when she herself has been set over by a borrowed mother; but this is merely notional: the instinct of nature overcomes every thing. I never did perceive any repugnance to the incubation of ducks, although originally set over by common hens or turkey hens. As soon as the young ones are hatched, they instinctively take to the first neighbouring slough. Dambourney, whose whole life was spent in objects of public utility, thinks he remarked, that, until they are nearly crossed, a brood does not mix, neither on water nor on land; each keeps apart, but without fighting, or appearing to hate each other.

"*Of Ducklings.*—They are thirty-one days in hatching, whether the duck be entrusted with the care of hatching her own eggs, or whether it be left to the hen or or the turkey-hen. It is possible to rear a great many, and at a small expense, because they run and find a part of their food almost as soon as they are out of the shell.

"Ducklings can do without their mother as soon as they are born. Their food, in the first days, is crumbled bread, sopped in milk, and a little wine, or cider. Some days after, a paste is made for them with a bunch of nettle leaves, tender, boiled, chopped up very small, and of a third of the flour of Indian wheat, buck wheat, or barley: stale eggs may be added, being boiled first.

"As soon as they have a little strength, a good deal of pot herbs are given them, raw and chopped up, mixed with a little bran soaked in water, barley, mashed acorns, boiled potatoes beat into pieces; little fish, when they are to be had, equally agree with these birds, who fall foul of the different substances that they meet with, and shew, from their most tender age, a voracity which they keep all their lives.

"Ducks are so vivacious, that an egg, broken out of curiosity, or by accident, two or three days before the time of hatching, will afford a duckling if it is nicely covered over with another shell. I have often seen these piecings done with success.

"To strengthen the young ones before they take to the water, they must be secured under coops, during eight or ten days, and having care to put a little water under it, which is an easy matter, when they have had for a setter the hen or turkey hen: they then get hardy on land: by setting them at liberty, a natural propensity soon draws them to the water; they plunge into it. Hens being unable to follow them, shew, by cries and moans, which they understand not, their uneasiness and alarm about the adopted family; a state which Rosset has so well delineated in his *Poeme de l'Agriculture*.—But they must be gradually accustomed to return home in the evening, to prevent accidents, which might happen to them if they remained at a distance from it.

"Further precautions must be taken before the ducklings are permitted to go with old ducks, for fear the latter should ill treat them, and food given them like other fowls, always in the same place, and at the same hours, in order that they be there regularly, and not stray. It is requisite to keep them cooped up under the roofs on purpose for them, and to place these roofs, as far as the situation will allow, near the slough or pit of the farm-yard.

"*Food for Ducks.*—They may be left to themselves a part of the year. They live on grain strewed about the poultry-yard: with these birds nothing is lost; the siftings and sweepings of barns, mealy substances, fermented in the shape of bread, the residue of breweries and boiling houses, herbage, vegetable roots, fruits; every thing suits them, provided what is given them be rather moist; it even happens, that where water is at hand, that they take and dip their aliments in themselves. They, therefore, are particularly fond of the boiled potatoe; and it has been substituted in some parts with profit, to maize and barley It is on account of this disposition for moisture, that they are fond of being in meadows and pasture ground, which might easily be covered with those sorts of plants which ducks are most fond of.

"But it appears, that every thing approaching to flesh or offal is much to their liking, and forwards their growth admirably well. The large, fine species answers so well in the environs of Rouen, on the banks of the Seine, only on account of its being in the power of the keepers to feed them with earth-worms, taken in the meadows, and which are portioned out to them three times a day, under the roofs where they are cooped up separately: this is what makes those early ducklings so large, fat, and white, that are seen in the markets in the month of June.

"Ducks are so greedy, that they often set about swallowing a whole fish, or frog, which heats them extremely, if they do not immediately throw it up. Particularly fond of meat, they eat it with avidity, even when it is tainted. Slugs, spiders, toads, garbage, insects, all these substances, in a word, suit their ravenous appetite. They therefore are, of all the birds in the poultry yard, those that could do the greatest services in the garden, by destroying a quantity of insects, which usually do irreparable damage, did not their voraciousness make one liable to other inconveniencies, which must balance this advantage, and make one give it up."

Almost any food agrees with the duck, and he is easily fattened; in some places they are crammed for the purpose of enlarging the liver, which grows so large as to press on the anus, and they are killed when the orifice is opened by this pressure, and the liver appears.

Another article of profit is the feathers of the duck which, although not as good as those of the goose, yet are valuable, being used for pillows, &c. These feathers should be taken from the duck whilst alive, in the months of May and September, (according to our author,) before the moulting time.—

They should be plucked "from under the belly, wings, and round the neck." The moulting takes place with the male after pairing, and with the female after laying. The feathers require to be dried in an oven (after the bread has been taken out) to destroy the oil which they contain—they would otherwise become offensive.

(To be continued.)

ART. II.—*Report of the Committee for Awarding Premiums on Butter.* New-England Farmer, vol. 9, p. 166.

Some time during the last year premiums were offered by the citizens of Boston, for the two best parcels of butter of not less than one hundred pounds, (we quote from memory, not being able to lay our hands on the paper containing the offer,) and as the object was to draw to that city, a large quantity of the first quality, the premiums were large, and the competition open to the whole of the United States. For the best sample, the premium was *one hundred dollars*, and the next best, *fifty dollars*. The largeness of these premiums had the desired effect. Thirty-five entries being made, and 12,751 lbs. sent for exhibition—from the States of "Pennsylvania, New-York, New Hampshire, Massachusetts, Vermont, and Maine." From one dairy alone was sent 1300 lbs. which sold for 22 cents. The report of the committee contains nothing more, than to whom they had awarded the premiums, accompanied with a few remarks, of interest merely to those concerned in the exhibition, but to this is subjoined an account, by the Editor of the New-England Farmer, of the different entries, the quantity and prices they brought at auction, and to this is added "a few notes taken from the written accounts which generally accompanied the several lots of butter." These notes are interesting as exhibiting the different modes pursued by the competitors, and our farmers may gather a hint or two from them which may be of service in the future management of their dairies. We have affixed to each the number of pounds exhibited, and the prices per lb.

"No. 5 Newell's butter, which took the second premium of *fifty dollars*, was made from the cream of 14 cows, since the 25th September—there were about 80 lbs. more made of similar quality, which was not entered. The cows had common grass feed only. The butter was packed in old firkins, (which are considered better than new ones) in layers of about two or three inches deep, with a sprinkling of fine salt between each layer. The butter is thus more easily taken up as wanted for use.—303 lbs. 30 to 33 cts.

"No. 11. Mr. Weeks' butter was made from August to October. Mr. W. has the morning's milk skimmed in 12 hours, the evening's in 24 hours from the time it is taken from the cow; the cream is churned every other day:

the butter salted with Liverpool, ground; laid down solid; nothing added, except a little brine: a wax bag was fixed between the butter and the wood. 318 lbs. 17 to 20 cents.

"No. 12. Mr Crosby's mode of making is by skimming the milk while perfectly sweet, churning soon, *not waiting for large churnings;* when 'the butter has come, he turns off the butter milk, and then churns the butter again, in order to beat out the butter-milk well, without the warmth of the hand: in each of the two successive days, he works it over thoroughly, and then packs it down in tubs previously soaked with brine made clean by boiling and skimming. Mr Crosby has repeatedly taken the premium for the best butter exhibited at the Brighton and Concord cattle shows —300 lbs.

"No. 17. Mr. Prince's butter was made at his farm on Merino Island, in Winipiseogee Lake, (N H) It was made between the 10th of August and 19th of November, from cows mostly of the Alderney breed. His pastures are newly cleared land; though his cows have been freely fed with pumpkins His dairy room is neat and convenient, and attached alongside of an ice house. The butter, as soon as packed, is put into the ice house. Less than the usual quantity of salt is used; no colouring; but a small quantity of saltpetre and loaf sugar is added.—530 lbs. 18 cents.

"No. 24. Mr. Eager's butter was made from 17 cows, since the 15th September. The cream was gathered in seven weeks, from the milk, after sitting from 4 to 6 meals, which was varied according to the state of the weather, so that the cream might always be perfectly sweet. It was immediately churned after being skimmed; and from 5 to 6 lbs. pure fine salt put into 100 lbs. of butter, which was the only ingredient made use of.—325 lbs. 25 to 26 cents

"No. 28. Mr. Brigham's butter was put down before the 25th of November, and intended for fishermen to take out to sea the next season. It was prepared with salt, saltpetre, and sugar, which has for a number of years enabled the butter to endure their trips without injury.—300 lbs

"No. 29, which was of very fine quality, was entered by Dr. Warren, of this city, for exhibition only, and was procured of H. Gates, Montreal. It was made by a Yankee farmer of the name of Hastings, from Vermont, who now resides near Montreal, and has a dairy of 50 cows. The 54 lbs. exhibited was the product of a single churning, in November.

"No. 34. Mr. Haynes' butter was made from the common breed of cows in Pennsylvania, with about one in ten of the prime full bred Alderney breed, so that the butter is 10 per cent. Alderney, which Mr. H. thinks makes a perceptible improvement. Their feed has been from a common pasture, with a large proportion of white clover. The pasture has been frequently top dressed, but not ploughed for more than twenty years.—336 pounds."

SELECTIONS.

Art. I.—*On the use of Leaves as Manure.*

[FROM THE AMERICAN FARMER.]

Lucky Hit Farm, near White Post, Frederick Co. Va.

Mr. Smith,—As I believe it is the first time I have ever troubled you with my signature on any subject pertaining to agricul-

ture, other than reports on the improvement of sheep or cattle, and your columns now offer so great an inducement to the scribbler to touch occasionally on some of the most prominent and important points of husbandry, I beg leave here to offer you some remarks and facts on one of them so intimately connected with the production of the soil, and so almost universally essential to its improvement and perfection as to be interesting to all. I am almost ashamed to say, as it has ever been my doctrine, that all successes, and every thing believed to be useful in our way, should be communicated to some agricultural paper, that the following is an extract from one amongst other papers penned for the Farmer, and thrown aside for years past, fearing their want of plan and brevity would render them unacceptable and troublesome to the former Editor, whose leisure would not permit him to separate the wheat from the chaff, so multiplied were his concerns, and so deservedly popular, that it were impossible for him to examine the communications to the Farmer, and have that necessary rest and recreation which the soul and body require. The exclusive devotion of its present Editor to the peculiar interests of the Farmer will enable him to classify, and embody such a system of agriculture, as will not only meet the views of the practical and enquiring reader, but be highly interesting to the most intelligent—let it be remembered, that the American Farmer already is a respectable library, and is to be, with the support of the American public not a little honoured by foreign friends, a work comprehending a series of facts and information in the youthful progress of our republic, to shew our posterity some centuries hence that we have not been toiling for mere self-aggrandisement; but have been labouring with the aid of virtue and science to lay the most solid foundation for their glory and happiness. If it be suggested that a continual repetition of agricultural subjects will tire and be uninteresting, a moment's reflction, will unveil the unnatural and ungrateful supposition: taste, interest, and sincere desires will achieve much by introducing into its theory new beauties. Can it possibly be, that our mother earth, teeming as she does with vegetable and animal creation, with her rich stores reaching into her utmost recesses, shall fail to gratify with a boundless variety, the most versatile or philanthropic mind? Original domestic communications will increase and improve when it is seen that the American Farmer is pursuing a strict line of duty and sedulously avoiding whatever would have a tendency to relax the purest moral habits, or attract the mind from a course of industrious or elegant agriculture. I beg you will improve, sir, by anticipation, on the recommendations here *intended;* I feel myself entirely unequal to the task. The materials, composition, and application of manure in the plainest practical way, but chiefly the great value of leaves as an auxiliary, shall occupy our attention for a few moments, divested

of any abstruse or philosophical reasoning, commonly called theory, and varying with almost every writer who gives an opinion. There is scarcely a subject on which farmers change oftener and differ more than on making and applying manure. One advocates in the most obstinate terms this way—another that—a third, and fourth, some other mode—but we shall follow none of them in their varying opinions, but briefly remark that he who dogmatically declares there is but one season, or one consistency to carry manure on the land, is venturing beyond a prudent opinion. In the spring, when the great mass of manure should be hauled on the corn-land and ploughed under the furrow, because of its unfermented state—it is no reason that the same process should be pursued in autumn when manures are better decomposed and in a state to harrow in and mix intimately with the roughly ploughed wheat lands—the latter mode is most intimately connected with the material most abundant for making it, which I shall chiefly dwell on. It is often said by the derider of book farming, (and be assured, Mr. Editor, I value the polished essayist without experience as little as any one) that you *have only to follow* the industrious and persevering in order to complete success—make as much muck as you can carry out, and plough in—it is the quantity not the skill and manner. We deny the position as being too egregiously wrong to go down in this age of intellectual improvement and reform. There is nothing more fallacious—ignorance, mingled with long established error—a most wasteful economy—misusing, and abusing, what nature has provided for her support in renewed efforts to produce the plants of the earth, and expects the skill and knowledge of a man to bring to perfection for his own benefit, and her decoration and beauty. One half the manure well composed and judiciously spread, would be equal in its effects to double the quantity illy put together, and unequally disposed of in too large and unbroken masses: for instance, throw quantities of any kind of straw or corn-stalks on your farm pens too thick to be decomposed in due season; your precious materials will be wasted in their removal, and will operate on the soil in the most unfarmerlike manner, in entangling the harrow and ploughs, &c.

On the other hand, if you pen your cattle without a due preparation of leaves, straw, &c. there will be a filthy and extravagant waste of manure—the management of the summer cow-pen is more labourious than that of the winter—but its comparative contents cover much more ground advantageously, because of its more general decomposition, and consequent facility to be opened on the surface. The great importance of leaves as a manure has frequently been alluded to in the Farmer, but never been recommended in such a manner as to furnish serious ground for a calculating and practical farmer to go to work—the nearest

approach by a New-England farmer in collecting them for the barn-yard, was by throwing them into a tent and thence into the wagon—a plan so far removed from efficiency as to damp the enterprize of nine out of ten who would attempt it. I have been successfully engaged in converting them into manure for several years past, under the feet of horses, cattle, sheep, and hogs, and find the following prominent reasons preceding others for their use, and for the attempt to promulgate this easy :—

1st. A belief that there is a general neglect of the use of leaves as a material for manure.

2d. The almost universal use which might be made of them.

3d. Their importance as a material to keep up a system of operations for a seasonable supply of manure.

4th. Their salutary influence in affording a comfortable bed for all kinds of stock, particularly for hogs; freeing them from the mange—and their valuable substitution when straw is scarce for ice-houses, &c.

5th. The importance of their removal from the fence corners in case of fire, and to preserve the rails from rotting.

6th. Their qualities as a material for manure, as tested by experience in its application generally, but particularly in its adaptation to the wheat crop in spreading it broadcast on the rough fallow, and harrowing it in before seeding, &c. Some object to the use of leaves from the fear of injuring the forests—it will be proper to shew why there is no reason for apprehension. If the scripture truth, with regard to the falling of the tree, was verified in relation to the leaf, there might be an argument urged in their removal, that Peter was robbed to pay Paul—but it is certainly not the case—the tree lies where it falls, but the leaf is driven by the most prevalent winds into some deep valley, the lee-side of declivities, or into the corners of a fence where they moulder into dust, rendering no service to man or beast, and benefiting only a portion of soil which may never be called into cultivation—but the habit of permitting leaves to bank up against fences is highly injurious to them, evidently producing premature decay. If by any prudent forethought or arrangement the leaves could be detained just where they fall, which may in some degree be done by attention to the clearing of a plantation in reference to its altitude and exposure to the most prevalent winds, their removal would never be recommended, because it is rational to conclude that the forest requires a return of its foliage, however abundant, to keep up a supply of food for its powerful growth and absorption, and detain with greater security the moisture so much to be valued in our dry climates and waving lands; but it is enough for us to know here, the undoubted fact, that millions of tons of leaves are annually deposited in some place and lost to all intents and purposes for the want of either a proper knowledge of their useful application, or the skill and industry to haul them to

the farm-pen. Our reason and observation would be given us in vain, our "talent" would be hidden in the earth, if the neglect of some of the most apparent opportunities of employing the resources of nature to advantage were permitted.

The process of supplying the farm-yard with leaves is as follows:—After designating the ground always a prudent distance from the roots of trees, which might possibly be injured by their removal, rake them up in winrows from eight to ten feet wide, then with some kind of plough cultivator, or harrow, scarify the earth on each side lightly, the width of the leaf-bed; with the back of hand rakes shove the loose earth to the leaves, and with shovels cover them an inch or so deep. This operation should be performed when the leaves are wet, and the earth light and loose. This preparation should be made in the spring months to an extent of the probable demands of the farm soil for the season before you, but may be done at any time most convenient to the farmer if the leaves are not too dry. The importance of having a sufficient supply of leaves ahead, is, that when thus prepared, they may be transported at any time, whether wet or dry, to the farm-yard, which should be done at periods of from four to six weeks apart, and spread about six inches deep, as uniformly as possible to receive the annual manure—double this thickness will not be too much for an early winter preparation, mingled with straw and corn-stalks—in the spring the leaves will be incorporated with the great mass of manure. The process of hauling them to the farm-pen is important to be considered, as many have laughed at the idea, saying you might as well attempt to haul feathers in any open cart; and it is not much to be wondered at, under the different plans and systems attempted.—Large ox carts discharging their loads by a tilt, or one horse carts, are by far the most expeditious mode of conveyance, with very high side-boards, &c. four pronged forks, with the teeth slightly curved and flatted, composing a frame about two feet square, are used to lift the leaves, and will raise as many as a man can coveniently heave into the cart, weighted as they are with the adjoining soil, and kept continually wet, or damp, by the covering of earth;—four hands are employed to a large ox cart, two with forks, one with a rake to keep the leaves and earth neatly pushed up, the fourth in the cart to receive and tread them firmly down. One ton, more or less in proportion to the quantity of earth mixed with the leaves, and their weight by reason of the season, may be carried at each load in an ox cart or wagon to the farm-yard—the speed with which this loading is done, and consequent filling up of the farm-pen is truly encouraging to one who looks to the improvement of his soil, through a generous and regular system of manuring. As an evidence that I have given this mode of increasing the manure bank a sufficient trial, permit me to say, that I have in the course of a year, used more than

one hundred loads. But once for all, let it be kept in mind, that in the pursuit of this system of increasing the stock of manure, no risk should be run, detrimental to the forest, for all its alluring advantages, one of which has appeared very conspicuously in the last autumn, and although it is a fact which the theory of some will combat, it nevertheless stands as an evident confirmation of its truth. Six or seven acres of land was covered with 130 ox cart loads of this leaf manure, and a fraction less than seven gallons of wheat sowed per acre—it appears to be abundantly thick, and by comparison with experiments made last year, no doubt will prove so in time of harvest—on the same ground, without the aid of this well pulverised manure, ten or twelve gallons of wheat per acre would have been required to have produced the same verdure and apparent thickness; and as to its ultimate production there is no doubt of the great superiority of the thin sowing and manuring. There is then a saving of from three to five gallons of wheat per acre, in consequence of the manuring. But it will be urged by many an industrious farmer, that there is not time to collect the materials for this additional stock of manure, and haul it out in proper place, cultivating at the same time the usual quantity of land. If this really be the case, unhesitatingly let it be recommended that a few acres be detained in grass, in order to afford opportunity for the important work of manuring. At this time of day it would appear superfluous to recommend or exhort our farmers to the accumulation or application of manure, since the practice of ages, and our every day experience tells us it is indispensable; but to investigate the value, and recommend the more liberal use of a much neglected material amongst the varieties presented to our choice, can scarcely be doubted as important to the improving condition of the farmer. A brief hint of another mode of using leaves may be important to some—carry them immediately on your knoles to cow-pen, at from ten to twenty loads per acre—double the ground may be gone over in the season, and more effectually manured, as half the period will suffice to keep the pen in one place—the leaves preserve their moisture, and save much of the manure from exhalation. It may be well, Mr. Editor, now to come to a close—your patience and my pursuits should be considered, though a two foot snow permits the farmer to do but little more than feed the stock and sled* a little wood. But be assured that if this leaf subject were done justice to, supported by numberless remarks connected with it, too long for one essay, the practice and science of manuring might be benefited beyond ordinary calculation, and far beyond any feeble attempt of your friend and humble servant, RICHD. K. MEADE.

* The writer has the only one he knows of in this part of the country.

Art. II.—*Systematic Alternations of Crops.*

[FROM THE ENGLISH PRACTICAL GARDENER.]

In the cultivation of the ground, either in farming or gardening, a proper attention to the regular rotation of crops forms one of the first and principal features of good management, although its beneficial influence has not yet been fully accounted for by chymists. The rationale of rotation is thus given by Sir Humphry Davy:—"It is a great advantage in the convertable systems of cultivation, that the whole of the manure be employed; and that those parts of it, which are not fitted for one crop, remain as nourishment for another. Thus, if the turnip be the first in order of succession, this crop manured with recent dung immediately finds sufficient soluble matter for its nourishment, and the heat produced by fermentation assists the germination of the seed, and the growth of the plant. If after turnips, barley with grass-seed be sown, then the land being but little exhausted by the turnip crop, affords the soluble parts of the decomposing manure to the grain. The grasses, rye-grass, and clover remain, which derive a small part only of their organized matter from the soil, and probably consume the gypsum in the manure, which would be useless to other crops; these plants, likewise, by their large system of leaves, absorb a considerable quantity of nourishment from the atmosphere, and when ploughed in, at the end of two years, the decay of their roots and leaves afford manure for the wheat crop; and, at this period of the course, the woody fibre of the farm-yard manure, which contains the phosphate of lime, and the other difficultly soluble parts, are broken down, and as soon as the most exhausting crop is taken, recent manure is again applied."

Gardeners should pay particular attention to rotation of crops, as far as the nature of the thing will admit of; a good practice is to sow down part of the garden every season in grass, clover, and barley, which may be used as green food for horses and cows. The barley should be sown with the clover, and cut down, not being allowed to ripen; thus it acts as a nurse and a shade to the clover. But, in all cases where this is done, let the ground be laid down in as good condition as possible, and the manure laid on will not be lost. Land thus laid down in grass should continue so for two years, or if for three, the greater will be the benefit. However, this is generally regulated by the quantity of ground which can be spared from crops, for the time when the ground is wanted. The crop of grass, if dug in, but not too deep, for reasons given already, will materially improve the soil; but on no occasion whatever trench it in, as is too often the case. This practice, although excellent, can however only be applied to gardens on a large extent; for its adop-

tion would not be attended with the same advantage in the general run of our gardens.

By a rotation of the perennial crops, such as quartering out currants, gooseberries, and raspberries, &c. the ground will not only be renewed, but also rested, or at least very much improved. None of these crops need occupy the ground above twelve years, and not less than three; this, together with trenching for the principal crops of autumn-planted brassica will keep the ground in fresh order, and be attended with no loss of space; for in all large gardens, and the generality of small ones, new plantations of these things should be made to a certain extent annually, which will throw a certain proportion of ground into regular rotation. In cropping all gardens, as far as it can be rendered practicable, rotation should be aimed at, and thus, by keeping all the legumes, as peas and beans, the brassica or cabbage kinds, the bulbous or onion kinds, and lighter crops, as salads, &c. by themselves, each following in regular succession, the garden would not only look better, but would, to a certain degree, produce the rotation required. In no case should any of the brassica tribe follow another upon the same piece of ground, neither should peas follow peas, nor beans, beans; onions are, probably, the only exception in garden culture. A journal, or plan of the garden should be kept, and the ground divided into portions, each of which should be numbered, and a careful record kept of all crops, manurings, trenchings, &c.

The necessity of rotation is pointed out to us by nature; for all perennial herbaceous plants have a tendency to extend their circumference, and to rot and decay at their centre, where others of a different kind, spring up and succeed them. This is particularly exemplified in the strawberry, and all such stoloniferous growing plants; mushrooms are said never to rise two successive years on the same spot. The production of the phenomenon, called fairy rings, has been ascribed to the power of the peculiar fungus, *(Agaricus orcades,)* which forms it, of exhausting the soil of the nutriment necessary for the growth of the species.—The consequence of which is, that the ring extends itself annually, as no seeds will grow where their parents grew before them; at the same time, that the interior of the circle has been exhausted by succeeding crops; but in those places, where the fungus has died, grass has grown luxuriantly, nourishment being thus left for the support of grass and other plants, after the agaricus has exhausted all that was destined by nature for it.

All crops for a few years thrive well on newly turned up virgin mould, but in a few years they degenerate and require a fresh soil. Land, in the course of years, often ceases to produce the most common vegetables, and fields which are well laid down with cultivated grasses, lose every one of them in a few years; they become, as it were, tired of them, but the truth is, that they

have exhausted the nourishment proper for their respective sorts, and consequently die, and give place to others. This fact is frequently experienced by botanists to their regret, for a plant is often found in abundance for years, in one field or wood, and in course of time wholly disappears.

A change of crops is founded on an acknowledged fact, that each sort of plant draws a nourishment peculiar to itself. On this principle, after a piece of ground has nourished one crop, another of a different description may succeed. Nothing can relieve the soil more than a rotation of crops judiciously arranged, according to which plants of different habits and constitutions succeed each other. To reduce this to practice, we will suppose a quarter of sea kale or asparagus, the roots of which are large, and have penetrated to a considerable depth, and which have remained in the ground for several years; and further, that they have exhausted the soil, in which they grew, of those parts which constituted their principal food, and in consequence, that they have ceased to thrive; then instead of re-planting the same piece of ground with young plants of the same kinds, let them be entirely cleared away, and the ground dug, and cropped with peas, beans, or any of the leguminous kinds, whose roots do not penetrate to any great depth, and they will derive sufficient nourishment, either different to the former kind, or such as the root of the preceding crop was too deep to absorb. In like manner, let the new crop of sea-kale, or asparagus, succeed some crop of a light description, such as any of the common annual culinary vegetables. It is a rule from which only extraordinary circumstances can warrant a departure, never to plant a new set of perennial stock on the ground from which has just been removed a plantation of the same or a similar species, which has worn itself out. On the contrary, crops which strike deep should be succeeded by such as pierce but a little way into the ground; and crops which have occupied the ground for any length of time should be succeeded by such as are either biennial, or indeed annual.

From the general richness of garden-ground, and much manure being constantly employed in the raising of garden-crops, much less attention has perhaps been paid to the courses of cropping in the garden, than in the field. It is, however, equally necessary in one case as in the other, and the same principles are applicable to both.

A variety of circumstances, however, conspire to prevent its being so effectually accomplished in the garden as in the farm; such as the smallness of the portions of ground generally alotted to this use; the vast number of articles which are to be grown, and their great similarity and relation to each other. The following classification may be considered the most proper:—

Broccoli, cabbage, cauliflower, and savoys;
Common beans, French beans, and peas;
Carrots, beets, and parsnips;
Turnips, early potatoes, onions, leeks, eschalots, &c.;
Celery, endive, lettuce, &c. &c.;

It is found in practice that celery constitutes an excellent preparation for asparagus, onions, and cauliflowers.

Turnips or potatoes are a good preparation for cabbages or greens.

Broccoli or cabbages are a proper preparation for beans or peas.

Cauliflowers prepare well for onions, leeks, or turnips.

Old asparagus land affords a good preparation for potatoes or carrots.

The strawberry, currant, gooseberry, and raspberry, for the same.

Turnips give a suitable preparation for celery or endive; and peas, when well manured, are a good preparation for spinach, &c.

By properly attending to all these different points of management, crops of almost all descriptions may be put into the soil, so as to succeed with much greater certainty, and in a much more perfect manner, than is usual in the ordinary methods of putting them into the ground.

ART. III.—*Answers of the Central Committee of the Sugar Planters of the State of Louisiana, to the Circular of the* Hon. S. D. INGHAM, *Secretary of the Treasury, dated 1st July, 1830.*

First question.—The names and description of the several species of varieties of sugar cane, with a statement of their habits and qualities, as to soil, climate, &c.

Five kinds of sugar cane are cultivated in Louisiana.

1st. The cane called Creole cane. It is supposed to have come originally from Africa; its stalk rises vertically, the joints are closer than in the other kinds, and it is not so long and thick; its leaves, also, are vertical and remarkably lanceoloted; it requires as much labour as the cane of Otaheite; it is, of all the five kinds, the one that is most exhausting to the earth, so that, after a few years, the land on which it has been cultivated is so impoverished that it becomes necessary to substitute cane of another kind. The sugar that it produces has more strength or

or body than that from the others; it is, consequently, preferable for exportation, and suffers less waste by dripping in crossing the sea.

2d. The cane from Otaheite, called Bourbon cane. The stalk is thicker than that of the other kinds, and longer than that of the Creole cane; the joints are farther apart, the leaves broader, of a lighter colour, turning over and hanging towards the ground. The roots branch out less than those of the Creole cane, and it is more liable to be thrown down by the wind. The eye or bud of this cane is very small, and so flat that it is difficult to judge of its quality. It is the most watery of all, and consequently not suitable for new land; it succeeds better in an old soil, provided that it be well ploughed. Cultivated in this manner, the Otaheite cane is the one that produces the most sugar. It suffers less from the cold than the Creole, but it is more tardy in coming up; but, when it has started, its vegetation is more rapid than that of the others. The plants are not so easily preserved, and it must be replanted every year. It is admitted that the sugar it produces has less body than that from the others.

3d. The riband cane, green and red.

4th. The riband cane, green and yellow.

These two species of cane grow rapidly; their stalks are as high as those of the Otaheite cane, and a little less thick; the joints very far apart, as in that cane; the eyes more prominent, and larger; the leaves are more bushy on the top of the cane, which exposes it to be prostrated by the wind; but this accident is little to be dreaded in these canes, because they do not germinate so easily; whilst, in the other species, the buds, on being brought in contact with the earth, vegetate speedily, which changes the sap, and injures the production of the sugar.

The green and red riband cane comes up earlier than any other; it is peculiarly adapted to newly cleared land and low grounds; it is the most vigorous, the easiest to preserve as a plant; the one that bears the most cold, and the culture of which requires the least labour; but, by reason of the thickness of the bark, it requires a stronger pressure than any other to extract the juice; and steam power alone can produce the degree of pressure necessary to avoid a considerable loss of the saccharine matter. The sugar that this cane produces possesses body, is easily made, and gives less molasses than that from the others.

The green and yellow riband cane bears a considerable resemblance to the Otaheite: it is almost as watery, and is not hard; but, as far as we have been able to judge, the plants are more easily preserved; its stalk is larger than that of the green and red riband cane; it is late in coming up, like the Otaheite cane; withstands the cold at least as well, and appears equally suited to lands somewhat exhausted by cultivation.

5th. The violet cane of Brazil. This plant was introduced in Louisiana in or about 1806, but it was soon abandoned, the planters having found that in our climate it is much less productive than any of the others.

The Creole, the Otaheite, and the riband canes are at present the only ones cultivated in Louisiana, and are the best suited to the nature of the soil. They are all more or less affected by the variations of the atmosphere, are very sensible to cold, and are killed, in part, by the frost almost every year. They are also exposed to other injuries, which renders the culture very expensive.

Second question.—The highest latitude and coldest temperature in which the sugar cane produces seed.

In Louisiana it does not produce any seed.

Third question.—The best method of preserving the vegetating principles of cane cuttings on a long voyage.

The information possessed by the committee might prove inexact, as it is not usual to export canes from Louisiana.

Fourth question.—The latitude and temperature of the coldest climate in which sugar cane has been advantageously cultivated.

The committee knows not how far north the cane has been cultivated; but experience has shown, in this country, that it may be cultivated in a latitude much colder than was generally supposed; for fine crops are now made in Louisiana, in places where, a few years ago, the cane froze before being ripe enough to make sugar.

Fifth question.—The best mode of cultivating the cane.

The ground is ploughed as deep as possible, and harrowed; and after it has been thus broken up, parallel drills or furrows are ploughed at the distance of two feet and a half to four feet from one another; in these the cane is laid lengthwise, and covered about an inch with a hoe. Small canals, to drain off the water, are commonly dug, more or less distant from each other, and these are crossed by smaller drains, so as to form squares like a chequer board. These ditches are necessary to drain off the water from rains, as well as that which filters from the river, which would otherwise remain upon the plantations.

Sixth question.—The best method of making sugar from the cane.

The cutting of the cane is commonly begun about the 25th of October. It is cut longer or shorter according to the degree of ripeness, and carted to the sugar mill, where it is pressed between iron cylinders moved by horses or by steam engines. The juice flows in reservoirs, called vats, of cane liquor; thence it passes, successively, into each boiler of the set. The set is a furnace mounting four or five sugar kettles; the first of which is called the *great kettle*, the second the *clean*, the third the *flambeau*, the fourth the *syrup*, and the fifth the *battery*. At the moment of pouring the juice into the great kettle, a small quantity of lime

is thrown in. This alkali, aided by the heat, separates the sediment which rises, and forms over the whole surface of the liquor a coat of scum, which is taken off the moment the ebullition commences. The cane liquor is afterwards decanted into the clean kettle, by means of buckets upon leavers. The foreman examines attentively whether or not it is limpid, and whether feculæ rise promptly to the surface of this second kettle. For this purpose a vessel is employed, into which some of the cane liquor has been put. If it is perceived that the liquor remains turbid or thick, a little lime is added in the vessel. If the cane liquor grows clear by the action of the lime, a certain quantity is added in the kettle, taking care not to put more than the exact quantity necessary to obtain a fine clarification. The cane liquor is then passed into the third kettle. After it is boiled, if the clarification is not perfect, some *milk of lime* may be again added. From the third kettle it is passed into the fourth, in which it is again boiled until it is thick enough to be poured into the fifth, where the boiling is completed. To ascertain whether the syrup has attained the necessary degree of consistence, a spoon is plunged to the bottom of the kettle, and withdrawn quickly. If the boiling has reached the proper point, the syrup is so thick that it covers the spoon, and separates from it slowly. To be more certain of the boiling, the thumb is placed upon the edge of the spoon, when a little syrup adheres to it, which is pressed between the thumb and fore finger; these are then separated suddenly. If the thread that is formed between them breaks dry, and rises in a spiral form, like a corkscrew, the boiling is good. The syrup is taken out of the kettle by means of a bucket on a leaver, that empties it into a trough, whence it flows into a cooler made of wood.

The layer that each boiling should form is commonly from 3 to 5 inches thick. If froth rises to the surface of the layer, the boiling has been continued too long; but if the froth is white and glutinous, it is a proof that a sufficient quantity of lime has not been employed. In this case, some lime must be added to the next battery, until the foam disappears under the *pallet*, and the trough that has conducted the cooler is dry, and does not stick to the hand when touched. If, instead of foam, there forms on the surface of the syrup a slight chrystallization that is friable under the pallet, the boiling is perfect in every respect. Twelve hours after, the sugar is sufficiently chrystalized to be put into hogsheads, whence the molasses drips through holes made in them. When the sugar is the produce of cane thoroughly ripe, and has been well made, it may commonly be exported in a month after it is put into the hogsheads.

Seventh question.—The latest improvements in making sugar from unripe cane, noting the advantages and disadvantages.

The ancient method is the only one in use. Some planters are engaged in perfecting it.

Eighth question.—The average quantity of sugar which may be made from a given quantity of land, of proper quality, in the various places in which cane is cultivated.

The average quantity of sugar that may be produced upon an acre of land of proper quality, well cultivated, is from 800 to 1,000 pounds; provided that the cane has not been damaged, either by storms of wind, inundations, or frosts.

Ninth question.—The number of hands required to cultivate a given quantity of land planted with cane, and to perform all the labour necessary in the manufacture of sugar in different places where it is made, and the estimated expense of making a given quantity, and putting it up for market, in each or either of these places, including boxes, casks, or hogsheads.

Louisiana having no agricultural society, and the cultivators being little in the habit of communicating to each other the result of their observations, it is very difficult to answer this question in a satisfactory manner. Two qualities of land are observed on the banks of the Mississippi, in Louisiana; a strong or compact soil, and a light or sandy soil.

The strong soil is easiest of cultivation, and most productive in rainy seasons. The light soils require less labour, and yield more revenue in dry seasons. To these differences others are to be added, resulting from the different exposure of the lands, the greater or less facility of draining them, and also from the greater or less quantity of a weed, known by the name of coco or grass nut. It results from this statement, that the cultivators, who observe but superficially, differ strangely upon the number of hands it is necessary to have to cultivate a given quantity of cane, as well as upon the product that can be obtained. Nevertheless, in answering the question, we will endeavor to approach the truth as near as possible.

Sixty working hands are necessary to cultivate 240 acres of cane, planted in well prepared land, and to do all the work necessary until the sugar is made and delivered. The sugar, up to the moment it is delivered to the merchant, costs the sugar planter about 3½ cents per pound for expenses incurred, without reckoning the interest on his capital. Considering the variety of opinions before adverted to, and in order to furnish all the data that may be of any utility, we have thought proper to accompany these remarks with a synoptic table of the state of this branch of culture in the parish of Plaquemine, a parish of which the climate is most favorable to the cultivation of the sugar cane, and the soil is not inferior in fertility to that of any other part of Louisiana.

Tenth question —The best method of refining sugar.

This question being foreign to the culture of the cane and making of sugar, and the committee not having sufficient information on the art of refining sugar, they cannot venture to answer it.

PART III.

MISCELLANEOUS INTELLIGENCE.

Agricultural Journals.—It is with pleasure we notice the recent appearance of two new periodicals, (the Genesee Farmer and Western Plough-Boy,) devoted to the diffusion of agricultural and horticultural knowledge. There now exists in the United States, no less than seven journals, all zealously striving to perfect that best of all arts, the culture of the earth, and to place it on a sure and solid foundation by scientific investigation. The time has not long passed, when a farmer would be ashamed to acknowledge that he followed any rule or practice he found in print, and "book farming" is held in bad repute by the old farmers to this day, but this strange prejudice, happily for the community, is fast fading away, and the support these journals receive is a sure sign that the rising generation are not disposed to follow the old and beaten tracks of their fathers, without investigating whether they be right or not. They are willing to give to these all the weight due to antiquity, but will also, inquire whether there be not other modes, which will give better results. This spirit of inquiry is abroad, and we may hope that it will not rest, until agriculture, both as a science and an art, shall take that station which her importance entitles her to. These journals which are spread in every section of these United States, will aid much in effecting this good. They are, the New-England Farmer, published at Boston; the New-York Farmer, at New-York; the Genesee Farmer, at Rochester, N. Y; American Farmer, at Baltimore; Western Tiller, at Cincinnati, Ohio; Western Plough-Boy, at Edwardsville, Illinois, and the Southern Agriculturist, at Charleston, S. C.

Hay.—This necessary article has been readily sold in our market, at the enormous price of *two dollars and a half*, and some even as high as *three dollars* per cwt. the usual price is from 75 cents to $1, and this advance is owing to the impossibility of obtaining supplies from the North during the late inclement season,—the quantity raised in the State, being wholy inadequate to supply our wants; in fact, very little is ever brought into our city, and that which is, generally being inferior, is sold for a less price. Our farmers and planters should look to this, for it is not owing to any other cause than negligence on our part, that we have so litte hay, and that of inferior quality. Our crab and crow foot grass, will make as fine, as any other known, and these are produced with such ease, and in such quantities, as to be undervalued by us. We would be glad if some of our correspondents would give some information on this subject.

Madder, Barilla and Woad.—The Pennsylvania Horticultural Society has issued circulars, requesting information relative to the culture, of these plants, "to the extent to which they are raised or imported into this country—to the preparation which they undergo, to fit them for commerce—to the fluctuations which have been observed in their abundance, and price in our

markets—to their adaptation to the soil and climate of this country—to the diversities observed in the qualities of merchantable madder and barilla, and to the causes which are supposed to produce these diversities. in a word to every point which can throw light upon this subject." We are not aware that either of these plants have been cultivated in this State, with a view to profit,—not that they would not flourish among us, but we possessed other crops which were more profitable. The time, however, is rapidly approaching, when our crops must be more diversified, and some of these may be hereafter, if not now, objects of culture for us. We therefore request such of our readers as may possess any information relative to these plants, to communicate it for publication, for we are aware that madder (and we believe also woad) has been grown in small quantities, by several of our planters, as objects of curiosity.

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Cranberries.—An account was recently given in the New-England Farmer, of the profits arising from the culture of cranberries, by which it appears, that from 70 to 100 bushels can be produced on an acre, which commands, in the Boston market, $1 50 per bushel; and one farmer, the last season, realized $600, from this fruit. This statement, as may be supposed, has set the farmers all agog for their culture, and it is asked in the Genesee Farmer, "where is the propriety of farmers emigrating to the Michigan or to the Rocky mountains, when they can be compensated for their labour in this manner, in the immediate vicinity of our large cities, where the comforts of life, and the blessings of civilization are so easily obtained?" but if all grow cranberries, where will be the market?—aye, there's the rub; but this is easily got over; if the New York market wont answer, go then to that of Boston, and if all be overstocked, send them to Europe, where they have been sold at $8 per bushel, as fresh "as when first gathered from the marshes." A comparison is made between the profits arising from the culture of wheat, (at the prices paid for it in the northern part of Ohio, and Michigan,) and cranberries, highly in favour of the latter. The net profit from an acre of wheat, is stated at *four dollars*, and that of cranberries at *eighty-five dollars*, and the article closes with—"Thus it would appear, that the net profit of one acre of cranberries in New-England, would be equal to twenty one acres and a quarter of wheat in the northern part of Ohio, and Michigan. Now, this is all well, there are some people who seem to require care to make them happy, and thus by emigration, they can increase their cares twenty fold on the same amount of business." We wish we could make some fortunate discovery, which would stop the emigration from these States.

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Propagation of Grape Vines.—The enterprize and experience of Mr. Longworth, are worthy of notice. He has a variety of vines which he raised from the seed, principally from one just spoken of, producing different varieties of grapes, which bid fair to be excellent wine grapes. His mode of propagating the vine on the wild stock, has in no instance failed, and merits description. Late in the fall (none too late now) he selects a wild vine, about the size of a walking stick—cuts it about three feet from the ground, and digs it up with as much root as he conveniently can, and transfers it to a hole, in which are mingled, fine manure and light rich soil; thus the root is placed until March. He then cuts it close to the ground, and inserts neatly the grape scion, in the same manner in which an apple tree is grafted. He then applies a paste made of clay and fine dry horse dung,—then scrapes the loose rich earth around unto the top of the graft. So luxuriant is the growth, that it is necessary, the first season, to protect them from the severity of the frost, by covering them with earth. They bear plentifully the second year, and are more hardy and fruitful than if raised from cuttings. Next season, we may expect to see Mr. Longworth in our market, with grapes worth looking at, worth buying, and worth eating.

Zanesville Gazette.

Scions.—I am frequently inquired of, as to the proper season for cutting scions for grafting, to which inquiries my reply is, "at any time when you find a kind of fruit you wish to cultivate." There is no season of the year at which scions may not be taken and transported two or three hundred miles, if done with care, and be in condition for grafting or inoculating.

As winter is the season when farmers do most of their travelling, visiting their friends, &c. it offers greater opportunities for them to collect scions of choice fruits than any other season of the year. But then opportunities are often neglected, under the impression that scions should be cut in February, and even at that period many think that stone fruit cannot be grafted. To correct these errors a few directions may be acceptable.

When you find a variety of fruit you wish to cultivate, procure some scions of the kind—if in summer, select strait, healthy shoots of the present year's growth, of such length as shall suit your convenience for carrying; let them be done up in a wet linen cloth and carried in such a manner as not to be bruised. Budding may be done any time during the summer when the bark will part from the stock freely, which it will generally do from June until the last of August. It is not essential that the bark should part from the wood of the scion as the bud may be inserted with the wood attached to it - after the season of budding is past. scions cut in autumn should be cut with a few inches of the preceding year's wood, and when carried to their place of destination, may be put in the garden sticking the lower end or old wood a few inches in the ground. If put in the cellar they are very apt to be destroyed by rats or mice—scions may be kept in this way for grafting until June. Apples, pears, plumbs, cherries, and quinces may be grafted with much certainty. Peaches, apricots, and nectarines are more difficult but will succeed if carefully done; also most kinds of forest trees: but there are very few trees or shrubs of any kind that may not be budded.

Currants, gooseberries, and grapes are generally cultivated by cuttings, which may be taken from September until June. In procuring scions persons should be very careful in ascertaining the names and the qualities of the fruit and equally careful in labelling and recording the same, that they may cultivate from them or distribute them to their friends in turn without the possibility of mistake.—*Genesee Farmer.*

A method of accelerating the maturity of Melons.—This consists in spreading under and around the melons, a bed of pulverized charcoal two inches deep. Lampodias, at Freiheng, attempted this experiment in 1813, and he succeeded in ripening melons in a box filled with earth and not covered during the cold summer of that year. The surface of the charcoal attained a temperature at noon of from 115 to 188 degrees, while elsewhere it was only from 85 to 88 degrees.—*American Farmer.*

Horticultural Curiosity.—We had the pleasure, a few days since, of receiving a fine ripe orange, from the garden of Dr. Kirtland, accompanied with the following note:—

Messrs. Hapgood and Pease.—Accompanying this letter is a mature and full grown orange, the production of a tree that sprung from a seed, planted in March, 1828. The seedling was budded from a fruitful stock, in the following August, and in about three weeks had headed down, near to the inoculate. This put forth a growth of four inches, the same season, and during the summer of 1829 attained the heighth of two feet; its luxuriant branches forming a spreading top. In March, 1830, *two years* from the time the seed was planted, and *nineteen months* from the insertion of the inoculate, it showed more than *one hundred and fifty* blossom buds. During the month of May it was literally a cluster of splendid an fragrant flowers. Of the numerous young oranges that formed upon it, only seven were permitted to remain; each of which is equal in size and maturity to the one I have forwarded to you. Yours, with respect, J. P. K.

Poland, Jan. 11, 1831. *Ohio paper.*

Cow Cabbage.—I have noticed in the last Free Press and Repository, a communication copied from the New-York Farmer, signed by James Thacher, of Plymouth, (Mass.) on the importance of cultivating what he calls the cow cabbage, or *cesarian kail*, the seed of which was sent by Dr. James Mease. Through the politeness of the Post Master, in Charlestown, I too received, in May, 1229, some of the same kind of cabbage seed (spoken of by Mr Thacher) from Dr. Mease, of Philadelphia. The Doctor, in his communication to the Post Master at Charlestown, gave the plant the name of tree cabbage. Living as I do in a more southern climate, and having been more successful in raising the tree or cow cabbage, than either Mr. Thacher or his neighbour, 'who took up his plants in the autumn and put them into his cellar,' I will, with your permission, make known, through the columns of your paper, the progress I have made in cultivating this new kind of cabbage, called by my old Gardener, 'wild cabbage'

I sowed a few of the seeds in my garden early in May, 1829; they germinated quickly, and produced thirty plants; twenty of these I transplanted in the first week of October following, placing them two and a half feet apart—eight of the plants I did not remove, suffering them to remain the same distance apart of those I transplanted—all remained through the winter without shelter of any kind, and only two stalks killed by the frost—Those not transplanted were most luxuriant, some of them are at this time nine or ten feet high—those transplanted are from four to five feet high. Dr Thacher speaks of this cabbage being very valuable as provender for cows I have not tried it in that way, but think it may answer a good purpose: I can speak with certainty from experience, and say that it is very valuable for table greens, called in Virginia 'sprouts.' It was ready for use last spring before any other greens—one stalk will produce more than a bushel of sprouts Dr. Thacher speaks of this cabbage living four years. Dr Mease, when he transmitted the seed, said they would live three years. This is only the second year since those in my garden were planted; they are now loaded with seed, and the stalks appear on the decline. I rather incline to the opinion it will only last two years, but am by no means positive, as there are at this time among those in my garden, many young shoots springing from the roots of the old stock. New-England farmers are encouraged to cultivating this new article notwithstanding the plants must be kept in a cellar in the winter. I think keeping the plants in a cellar a discouraging business, but here, where they will stand the winter I think it will be found a most valuable plant, and farmers may profit by it—they cannot lose.

A SUBSCRIBER.

Jefferson county, (Va.) July, 1830.

[The expedient of keeping the plants in the cellar during the winter can only be necessary in a cold climate, and upon a small scale they will repay the trouble they thus give.]—*Virginia Free Press.*

Slips.—Ladies who are fond of green house plants, and have it in their power to procure slips of various kinds, will find a great benefit, and a most certain preventive of failure, particularly either in a warm room in winter, or a warm sun in summer, by covering their slips with bell glasses, or where they cannot be procured, with tumblers, or any kind of glasses that will admit light, observing to admit air, at least one hour each day, and not keep the slips too wet, as it has a tendency to rot them before they strike root, or have leaves to carry on evaporation. By this process, hardly any single instance of a plant has been known to fail. In setting slips, it is important to clip nearly all the leaves, else there is too great a call for sap ere it has rooted. An ounce of saltpetre, or a spoonful of chloride of lime, in a gallon of water, is a greater quickner of vegetation, and at once shows its beneficial effects.—*Genesee Farmer.*